

American Artisan

Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 97, No. 20

CHICAGO, MAY 18, 1929

\$2.00 Per Year

"Sitting on top of the heating World"



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Massillon, Ohio

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The Furnace with



IMPORTANT improvements made in the 1929 Model give further advantages to this patented construction already nationally recognized for its remarkable efficiency.

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Patented fin construction has been improved to further increase the heating efficiency.

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Water pan is larger.

Diving flue eliminates the need of old-style radiator.

Single piece, wrought-steel base ring.

Rugged, extra heavy grates.

HALL-NEAL FURNACE CO.

1322-1332 N. Capitol

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We believe in and belong to the National Warm Air Heating Association.

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POINT NO. IX

ADEQUATE HUMIDIFIER - CORRECTLY LOCATED - SCIENTIFICALLY DESIGNED

THE necessity of moisture in warm air heating cannot be questioned. Eminent scientists and engineers have proven this beyond any doubt. Advanced construction methods have lent a hand and today the Midland TRUESTEEL is so constructed as to give adequate warm air with just the correct amount of moisture. In experimenting scientists and engineers were unanimous in declaring that the position of a water pan or humidifier must be over the door at the top of the front. They also found that the surface of the water would give only correct evaporation when entirely enclosed by the casing of a warm air furnace.

Note the illustration. You can readily see that the Midland TRUESTEEL water pan is at the top of the furnace front directly over the feed door. This water pan is so constructed that it can be easily removed for cleaning and can be filled without wasting and spilling water all over the basement floors. Its assembly is guaranteed leak proof. The construction of this pan is such that the bowl extends far back inside of the casing, thus allowing maximum evaporation in the casing ONLY. In designing and assembling the pan, cleanliness was considered. It is impossible for ash or dust laden air from the basement to enter the humidifying chamber and find its way to the rooms above. This is just another step to "cleaner heat." Midland solved these problems before presenting the TRUESTEEL.



This 18-Point Furnace Will Lead You to Better Profits

This TRUESTEEL feature is of much importance and if exploited to your prospects it will cut down sales resistance. Know the TRUESTEEL by its 18 superior points.

Mr. Furnace Dealer: "Are you interested in creating satisfied customers easier: In sale co-operation which breaks down sales resistance: In better profits? If so, you will write for information about the Midland TRUESTEEL, exclusive franchise, at once."

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Warehouses: Marshalltown, Iowa; Atlanta, Ga.



The TRUESTEEL
is
guaranteed
10 years

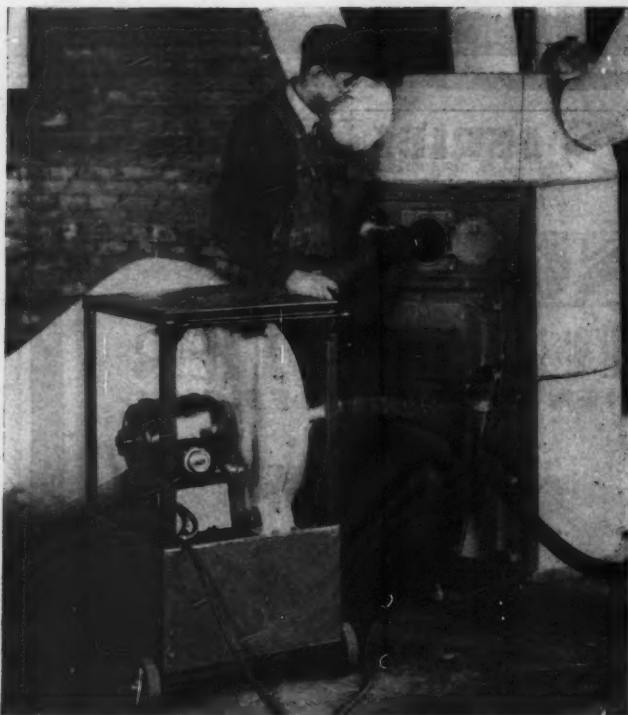
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TRUESTEEL
make you a
Leader

MIDLAND FURNACES

ALL STEEL ♦♦♦



CLEANER HEAT



Every Furnace Should Be Vacuum Cleaned Yearly!

FURNACE users everywhere are being educated to the importance and necessity of having their furnaces thoroughly cleaned at least once each year. Thousands of them—many in your territory—will have this work done during the next few months and furnace men are best qualified to take care of this business.

"Clean Up" with a CHRISTIE

With a CHRISTIE Cleaner you can clean furnaces quickly, easily, satisfactorily—and profitably. The CHRISTIE is a super-powered, portable, electric vacuum cleaner. Designed and built by practical furnace men, and sold at a price within the reach of every dealer. *Delivered with all attachments. Just plug in convenient electric outlet.*

Complete information and prices sent upon request—no obligation.



The CHRISTIE is equipped with a heavy canvas bag, 15 feet long and 20 inches in diameter, that can be easily attached, quickly removed, easily cleaned. Many other advantages.

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The Ath-A-Nor furnace provides these essentials and its construction includes a *Patented Three-Way Air Blast* which makes it—

SMOKELESS

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It cuts fuel bills and produces a more powerful fire.

Notice the large combustion chamber and deep set joints—it's built for powerful heating. Point out these features to your customers and *emphasize what they accomplish*—that's what they are interested in.

The May-Fieberger line of furnaces is complete—it comprises cast and steel furnaces of several designs—all high grade furnaces of exclusive design, reasonably priced.

The
May-Fieberger Company
Newark, Ohio

BOOMER

— that different
and better

STEEL FURNACE

WITH the demand for steel air-tight furnace construction the demand for the Boomer has grown.

It has all the usual qualities of high grade steel furnace design and construction *plus the greatly increased radiating surface of three large cast radiating flues.*

Because of this exclusive Boomer design it is *Soot, Gas and Smoke* consuming, making it more efficient and durable.

With the Boomer Steel Furnace your customers are assured of clean heating because of the scientific design of the radiating flues. The proportions cause even temperatures below the point which usually causes great expansion and contraction of cast iron.

It is the ideal furnace for high grade installation at a price that is favorable to customers.

Boomer dealers are having large profitable Boomer Steel Furnace sales.

Write for the BOOMER catalog today



THE HESS-SNYDER CO.-MASSILLON, OHIO.

The VERNOIS Line

will meet your every
requirement

Vernois



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THE VERNOIS line
comprises a furnace to
meet every demand.

Every furnace is of superior
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the merits and reputation of
our furnaces, prompt and
conscientious service, and
fair and trustworthy busi-
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naces have our full coopera-
tion and we are always
ready to give them any
assistance possible.

Let us send you complete catalogue
together with our sales proposition.

MT. VERNON FURNACE & MFG. CO.
Mt. Vernon, Ill.



Mention AMERICAN ARTISAN in your reply—Thank you!

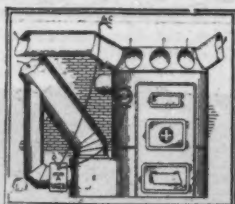


WHILE the Patented Mercury Control is the big exclusive feature of the A-C Furnace Fan don't overlook its other features which are just as outstanding. In A-C construction, *noise*—a big objection to fans—is practically eliminated—and yet the Emmerson Motor and the scientifically designed fan blades and unit produce abundant and efficient air motion.

Study A-C design—see a demonstration and you'll see why the live dealers are using it.

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INCLUDES
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—
HEAT BOOSTER
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MOTOR



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EASY TO
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CONTROL FITS
IN CASING
FAN IN BYPASS
CAN BE USED
IN ANY TYPE
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COMPLETE TO THE DEALER AT —

\$37⁵⁰

This is our No. 9 Fan Unit having 10 inch outlets and inlets. This number is the size for the smaller homes.

\$50⁰⁰

No. 12 Unit is of a larger size having 14 inch inlets and outlets and is designed for the larger homes.

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417 Sherman St.—Pontiac, Ill.

A-C MFG. CO., PONTIAC, ILL.

Send me complete details

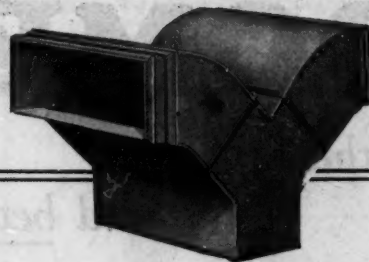
Name

Street Town State

JOBBER'S NAME

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No Friction

WARM Air Heating men who have studied the progress made in better installations *know* that warm air "flows" and travels best in pipe that has no sharp corners to retard motion or set up "whirlpools." They know too that they can get the smoothest and most efficient air delivery with—

HANDY PIPE and Fittings

which is specially designed to eliminate friction.

Notice how all Handy fittings are rounded, curved and shaped to provide quick, frictionless delivery.

It is well made, too, of course, of high quality material—by union men in a union shop.

Handy Pipe has been famous for years for its quick, perfect locking feature.

*Use it for a better job
—and a better profit.*

Write for our complete catalog which lists ALL warm air heating supplies.

F. MEYER & BRO. COMPANY
PEORIA, ILLINOIS



OPPORTUNITY KNOCKS FOR FIVE YOUNG MEN

IF after reading this ad, you find that you are not interested, will you be so kind as to pass it on to some deserving young man whom you think will qualify?

THE company behind this ad is a large, nationally known, furnace manufacturer, with a definite program of expansion. They need the services of five intelligent young men. Young men with ambition, men with a real desire to succeed and men with the will to win.

IN saying young, we do not refer particularly to age. We want men who still have their mind made up to make a success of life. Men who look at the furnace industry as one of life's greatest opportunities. Men with the will to win.

FROM the applicants, the five most likely ones will be chosen. The best one of the five, will be taken into the home office and trained for a career in the furnace industry. He will be paid while learning. As soon as possible he will be placed on the first rung of the ladder, as a salesman. The path up that ladder to the highest position in the industry is open, for all promo-

tions in this organization come from within the organization whenever possible.

THE remaining four will be started on a course of home study. As fast as they progress, they too will be brought to the home office for individual training and placed in responsible well paying positions.

APPLICANTS with a successful record of retail selling will be given preference. In writing give us all details which you think will be of interest. As complete a history of yourself as you possibly can give will go a long way toward putting you in the selected class.

FOR perfectly natural reasons the manufacturer placing this ad prefers to conceal identity except to the men in whom the company are interested.

Applications should be addressed to

"FURNACE MANUFACTURER"

care of Miss Etta Cohn

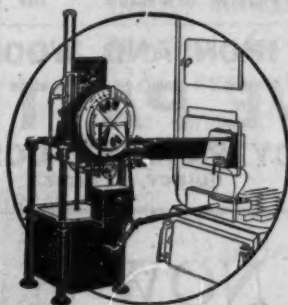
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Chicago, Illinois

Extra Profits—Yet No Extra Overhead

Ideal for Warm Air Furnace Installation



Warm Air Furnaces are designed to operate with a continuous coal fire—they will not stand the alternate heating and cooling of intermittent firing. With the McIlvaine the flame burns continuously and moderately. It is not turned on and off. It does not crack the furnace fire pot or open up the joints. It does not force odors out into the circulating system. "The McIlvaine is ideal also for hot water and steam plants."

Write today for complete information concerning the McIlvaine Sales Franchise.

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747 Custer Ave. Dept. A. Evanston, Ill.

McILVAINE
OIL BURNER

Listed as Standard by Underwriters

Now is the time to get into
prospects' basements -- and
this is the best
method—



PUT the Brillion in your car or truck and start calling on folks who have furnace heat. Your old customers and everybody else want their furnaces cleaned now—but you have to go after the business. You'll actually be surprised to learn how much repair business you will get in addition to profits on cleaning work.

And not only that—you'll come in contact with folks who have stove heat or who need new furnaces or extra runs on their present installations.

Have us tell you all about the Brillion Cleaner. — Send the coupon today.

BRILLION
PORTABLE VACUUM
ELECTRIC FURNACE CLEANER

BRILLION FURNACE COMPANY

228 North La Salle St., Chicago. 200-300 Park Ave., Brillion, Wis.

Send me full details on the BRILLION FURNACE CLEANER.

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Address.....

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GRILLES & REGISTERS
 COMPLETE LINE IN CAST AND WROUGHT METALS

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FURNACE CEMENT
Roof Cement — Stove Putty
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WILLIAM CONNORS PAINT MFG. CO.
 TROY Established 1852 NEW YORK
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A Better Installation Is possible now with this new Self-Locking Double Stack

CHICAGO Pipe has been the choice of thousands of furnace men for over 26 years—now this improved pipe represents extra value—the result of experience and modern manufacturing methods. It clicks together quickly and easily—stays together and makes a stack of unequalled strength.

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 THE CLEVELAND CASTINGS PATTERN COMPANY
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PATTERNS
 FOR STOVES AND HEATERS FIRST-CLASS IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

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STOVE PATTERNS
QUINCY PATTERN COMPANY
 QUINCY, ILLINOIS

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 STOVE AND FURNACE TRIMMINGS

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Known as the finest for over 21 years

They add extra value without extra cost. We make nothing but Wood Registers and only the best.

Write today for catalog and latest price list.

The AMERICAN WOOD REGISTER CO.
 Plymouth, Indiana

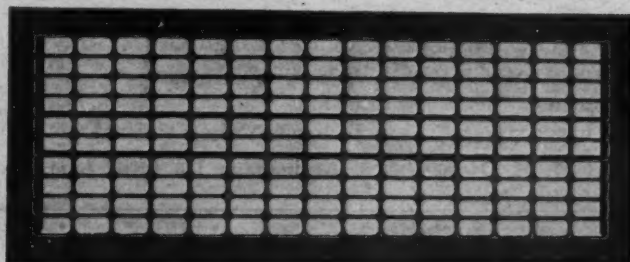
Plan NOW to attend
 the
CONVENTION

of the
 NATIONAL ASSOCIATION
 of
 SHEET METAL CONTRACTORS

June 3-4-5-6-7

Lord Baltimore Hotel • Baltimore, Md.

THE LINE OF NO REGRETS



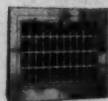
No. 255. Steel Cold Air Face. Large in free air capacity; unsurpassed in strength, but light weight for easy handling. A 14x30 has sufficient capacity for a 20" cold air pipe.



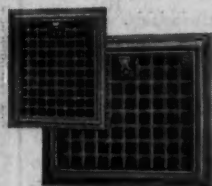
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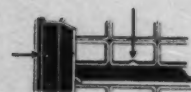
No. 150 Two-Piece Baseboard Register



No. 350 Vertical
No. 340 Horizontal Side-wall Registers

THE patented pinched-back fretwork which characterizes all H&C floor goods, and the bar-type design for sidewall and baseboard registers give the numbers in the "Line of No Regrets" free air capacity approached by none. For example, the cold air face shown in size 14x30 has free face opening equal to that of a 20x30 wood grille. Similar superiority is true of the warm air registers. This increased air capacity allows smaller, more compact sizes to be used without reduction in heating efficiency, thereby insuring a neater looking job with more profit for the contractor. Code inspectors have no quarrel with H&C capacities. Complete stocks of H&C goods are carried by leading jobbers. Catalog upon request.

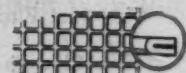
A representative stock of all standard items is carried at our Chicago Warehouse.



Heavy braces spotwelded along center of face and at ends.



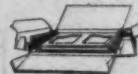
Right-Angle flange and "sheet-metal" screw save installer time.



Patented pinched-back fretwork gives greater strength and larger opening.



Genuine lacquers and natural oak grain finishes.



Specially designed containers protect finish till they're sold.

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101 Park Avenue

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61 West Kinzie Street

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1600 Arch Street

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Founded 1880

Published to Promote
Better
Warm Air Heating
and
Sheet Metal Work

American Artisan

The Warm Air Heating and Sheet Metal Journal

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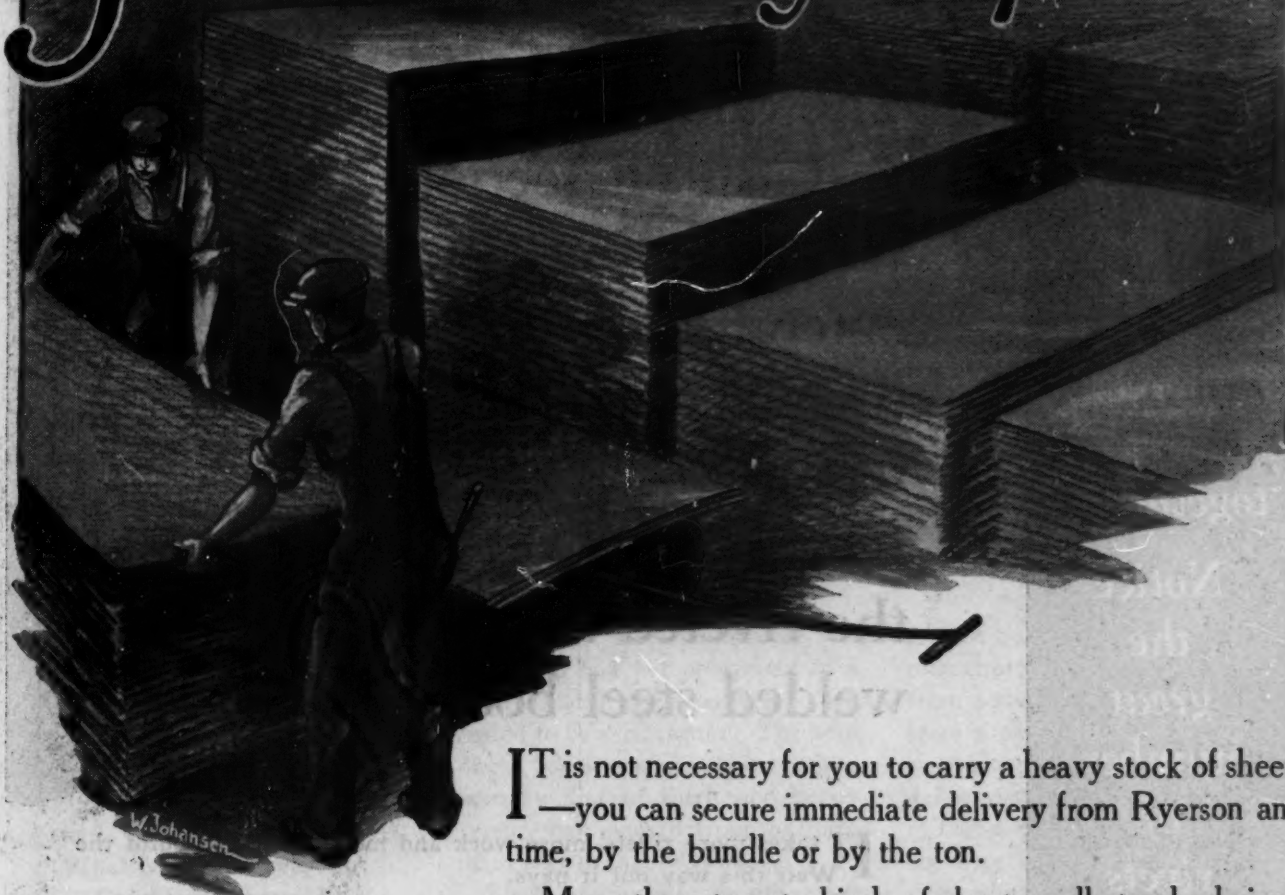
JOY IN LIFE DEFINED

A great deal of the joy of life consists in doing perfectly, or at least to the best of one's ability, everything which he attempts to do.

There is a sense of satisfaction, a pride in surveying such a work—a work which is rounded, full, exact, complete in all its parts—which the superficial man, who leaves his work in a slovenly, slipshod, half-finished condition, can never know.

It is this conscientious completeness which turns work into art. The smallest thing, well done, becomes artistic.—William Mathews.

Sheets for Every Purpose



Bars, Angles, Channels, Rivets, Bolts, and all other steel products which the sheet metal worker uses, can be delivered immediately from stock. See the current issue of the Ryerson Journal and Stock List for sizes carried at the various plants.

Tools for the Sheet Metal Worker—Beaders, Turning Machines, Snips and all the many sheet metal tools can be supplied by Ryerson. Every tool is backed by the Ryerson Guarantee covering both price and product. Write for catalog No. 27.

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STEEL - SERVICE

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**The
Highest
Grade
Steel
Furnace
Made**

NO BOLTING

the WEIR is RIVETED throughout.

The
Weir
is
not
merely
put
together —

Notice
the
great
number
of
rivets
and
the
narrow
spaces
between
them

The one-piece feed
and ash pit section
with openings
extending
through the
front is
RIVETED to
the riveted and
welded steel body —



IT takes more rivets, more work and more money to build the Weir this way but it pays.

It pays the man who will use his Weir as long as he lives, and it pays you who sell the Weir because it builds real business, because it is not only tight when new, but stays that way.

The Weir method of construction, illustrated, makes the most durable, practical and air tight fastening known.

*Write for a copy of the Weir Book
of Facts which tells all about this
and all other Weir exclusive features.*

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PEORIA-ILLINOIS**

**The
Original
Steel Furnace
Now In Its
Forty-Seventh
Year**

WEIR

**Made by
The Founders
of the
Steel
Furnace
Industry**

Mention AMERICAN ARTISAN in your reply—Thank you!



American Artisan

The Warm Air Heating and Sheet Metal Journal



Vol. 97

CHICAGO, MAY 18, 1929

No. 20

How About YOU— HAVE YOU KEPT UP WITH THE Changing Conditions?

By GEORGE DUERR

THERE is to be heard today in the ranks of sheet metal and warm air heating contractors ever increasing rumblings of complaint that remunerative returns are becoming less and less possible from their businesses. In fact, so marked are these undercurrents of dissatisfaction manifesting themselves as to indicate that many a contractor is unquestionably distressed with the anxiety of keeping his organization together.

What Will a Survey on Conditions Reveal?

A definite reason exists for this condition where it is found, and unfortunately for the industry the very men who should realize it do not. A survey of causes and effects in the industry will not have to progress very far before the ethiopian in the wood pile is discovered.

In order to reveal the real seat of the trouble which is confronting so many sheet metal contractors today we will have to go back in the industry 35 or 40 years and examine the methods employed by the sheet metal contractors (tinner) of that day in contrast with those in vogue today. In that day industry as a whole consisted for the most part in small shop owners, both industrial and mercantile. The factory system as we know it today insofar

A Brief Review of Fundamental Changes in Conditions and the Effect of the Industrial Revolution on the Sheet Metal Contracting Business

as the sheet metal contractor was concerned had not progressed to a point where the contractor had ceased to be a fabricator. The head of the business was a skilled artisan who by dint of thrift and perseverance had evolved from the stage of worker to that of employer.

There was little or no effort put forth by the contractor to create business for himself. What business came to him through the ordinary channels he did to the best of his skill and knowledge. As the community grew his business grew with it in proportion to the reputation he was able to build up for doing good work. But it is important to a full appreciation of what we are driving at here to fully understand that the contractor of that day was primarily and essentially the artisan rather than the business man as we know him today. He had been taught the rudiments of his trade under a more or less stern master. Further, he had been trained to coordinate manual labor with brain work, with the greatest stress on the former, and came to love the smell of burning rosin. He

took great pride in the creations he fashioned, hence devoted the greater portion of his time where his interests called him. (Incidentally, just recently one of those masterpieces of art work thus

created by a prominent sheet metal contractor, who has now retired from active business, was removed from a prominent building in Chicago after a half century of splendid service.)

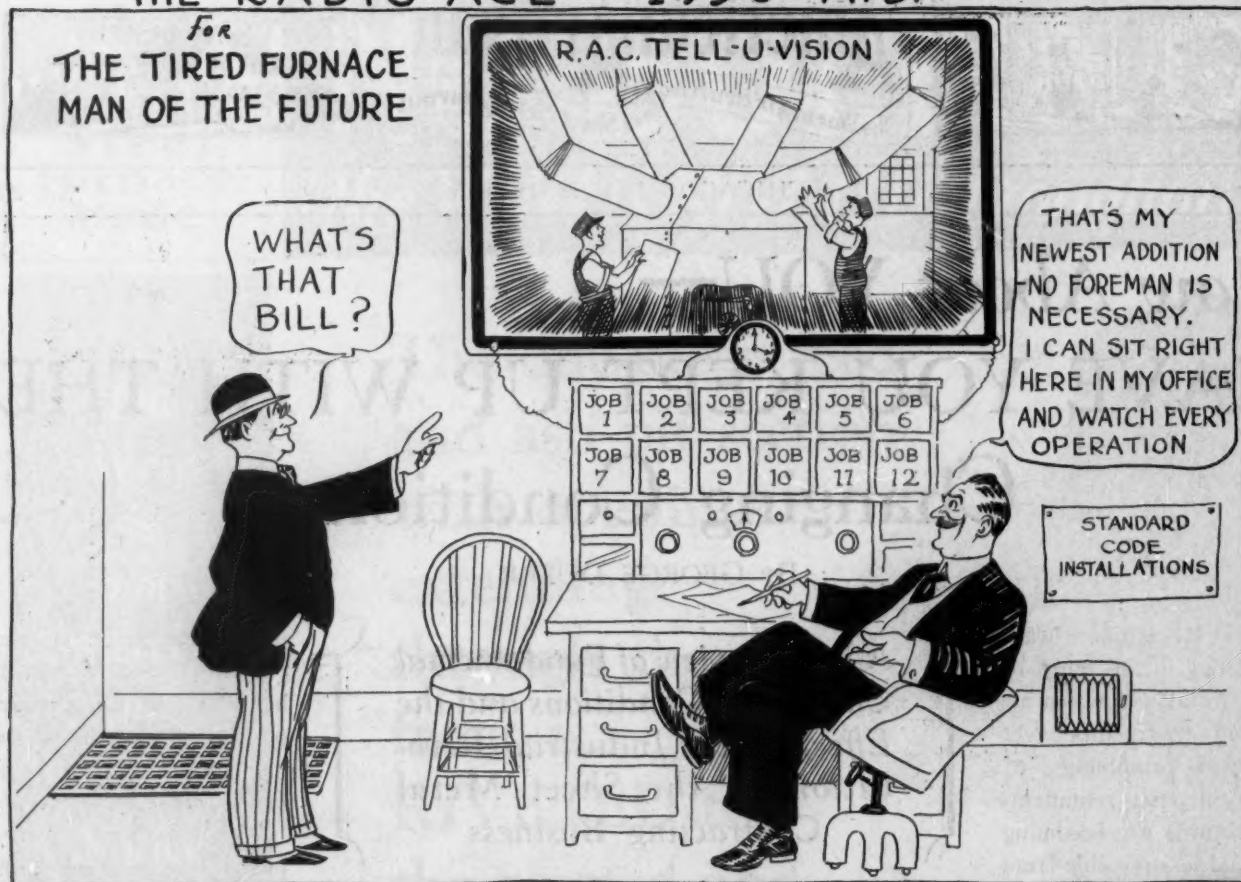
The point that we wish to bring out here is that practically everything which the sheet metal contractor used in his work was fashioned in his own shop. He was manufacturer and contractor in one. When his men were not busy on the outside they were put to making up stock or at least that part of them which the contractor wanted to keep with him were.

Many Contractors Failed to Realize That Industrial Revolution Was in Progress

These men quite naturally in their turn came to train other younger men, and as they learned, so they also taught. Recall the time that all this was taking place the nineteenth century was drawing to a close and the twentieth century was opening, with all the marvelous developments that have since come in industry just ahead.

During this time another impor-

THE RADIO AGE ~ 1950 A.D.



The Above Picture Is William Bertelsen's Idea of the Way Some Sheet Metal and Warm Air Furnace Installers Will Make Use of Tel-U-Vision. But What Bill Can't Figure Out Is If the Boss Sits in His Office All the Time, Who's Going to Dig Up the Business. Bill Lives at 902 Third Avenue, Rock Island, Illinois

tant condition in industry was developing. About twenty or twenty-five years ago it began to be apparent that an industrial revolution was in progress throughout the country. At that time the hand writing was on the wall, indicating that the day of the small individual manufacturer was soon to give way to the forerunners of our present day large scale manufacturing methods. Machines were being introduced at a rapidly increasing rate. Competition was growing keener. Business men were beginning to awaken to the fact that it would pay them to make aggressive efforts to get business; that is, merchandising as a definite science was being recognized.

The wise sheet metal contractor took his cue and revamped his business immediately in accordance with the new developments. As the demands of labor for shorter hours and higher wages became more insistent he saw that it was going to

be impossible for him to make many of the items in his own shop that were formerly thus made. Ford came along with his large scale production ideas which completely revolutionized production methods.

There were, of course, many other factors which played an important part in the changes that were brought about, but the main point I wish to stress here is that changes in fundamental conditions were taking place that many contractors did not see then and some of them have not yet seen. You can imagine the distress the change occasioned.

Here were a group of contractors trained in the old methods of doing business who now had forced upon them a condition with which they were entirely unfamiliar. Their consequent distrust of that which they did not understand was only natural, as was their chagrin and bitterness at the economic necessity which caused them to give over that

portion of their work which was almost as dear to them as life itself. Think of the battles that have been waged between capital and labor, all because on the one side stood the small shop owner making a desperate struggle to harken to the dictates of habit, and the worker on the other side being forced by economic necessity to make demands that caused those who employed him to think he had gone stark mad in his desire for higher wages and shorter hours.

What Did We Find When Smoke Cleared?

The industrial revolution has been successfully accomplished in many phases of industry, but unfortunately the sheet metal industry is not one of them. There are still enough men in that industry who have refused to change from the old to the new methods, who still think that they are saving money by making up stock in their own shops during slack periods, to cause disturbance

in the industry. They are only fooling themselves. They are paying dividends out of capital stock and surpluses, and when that is gone the business goes under the hammer. Hence their distress now.

It should be immediately apparent to any sheet metal contractor who gives the matter any thought that a manufacturer with the latest developments in labor saving machinery and a shop that is established on a large scale production basis is going to be able to make a great many items at a much lower per unit cost and much better than can be done in the small shop. Why then should the contractor struggle with this phase of his work? Why not accept a condition that is here to stay and make the most of it? Why not take this opportunity to release capital that would otherwise be tied up in labor and materials and use it for greater sales effort?

Machine Methods Here; Why Not Accept Them?

By way of illustrating why it is to the advantage of the contractor to permit the manufacturer to make as many of the items as can be, let us show the difference in cost of a 9-inch tin elbow. This item a sheet metal contractor can buy in small quantities at the present time from a jobber or manufacturer for approximately 27 cents. It is an acknowledged fact that no mechanic can average over three dozen of these elbows in 9 hours' time. The average sheet metal mechanic makes about \$1.50 an hour. This would mean \$13.50 for a 9-hour day. That would make the labor alone on each one of these elbows come to about 38 cents, and we still have to add the cost of the material, overhead, etc. And this applies to almost every item in the warm air furnace line. The sheet metal contractor will find it advantageous to purchase conductor pipe, gutters, elbows and almost anything that can be bought already made. Take the item of asbestos covering, for instance. These can now be purchased already made and cut; why not buy them and save time and money?

Journeymen sheet metal workers' wages today are such that it is only profitable to use mechanics on work that cannot be made up in the factory, on installation work such as furnaces, roofing, spouting, etc.

Additional ways in which savings can be effected by the contractor by purchasing as much of the stock as possible already made up are as follows:

Perfect fitting.—Products that are manufactured on dies are going to be uniform, fit perfectly and save labor in installation. Completed job makes better appearance.

Less space in shipping.—Many of the items are made knocked down

A DESIRE TO SERVE

The vital force in business life is the honest desire to serve. Business, it is said, is the science of service. He profits most who serves best.

At the very bottom of the wish to render service must be honesty of purpose, and, as I go along through life, I see more and more than honesty in word, thought, and work means success.

It spells a life worth living and in business, clean success.

—George Eberhard.

and therefore take less space in storage, cost less for trucking to the job.

It requires less skill on the part of the mechanic to make a good looking job with manufactured fittings.

Dealer's time can be spent for the most part in selling, instead of building fittings, and his volume of business is thereby greatly increased.

Manufactured products are adjustable, which is not always true with items made in the shop.

Transportation facilities are such that the dealer does not need to carry much inventory on hand, hence he has no investment in materials and labor in stock.

And the dealer can buy fittings for less than he can build them.

The old idea of letting the men

make up stock during dull periods must give way. It has given way in the progressive shop in that the contractor himself is reshaping his organization to fit the new status of things; he is making his business conform to good practice, as in other lines. He is concentrating on sales, in order to fill up the valleys and iron out the peaks in his business. He no longer works in the shop as he formerly did to help out, because his time is more profitably spent creating business. And he has more money to do this because of the fact that his inventories are less. He is permitting the jobber and manufacturer to carry that part of the load for him.

And that is as it should be. The constant aim should be to get large scale production on as many of the items needed as possible and reshape the organization along these lines. This done, the chances are that the contractor will find himself able to employ more men for a longer period of time and much more profitably for himself than he is now able to do.

There is no use clinging to antiquated methods of doing business. The change has come. Why not get on the band wagon and go along with the crowd? It will mean more business for you and profits made much easier than under the old system. The way to success lies in perfecting the organization.

If every sheet metal contractor who is now experiencing difficulty in the conduct of his business will investigate that business and the methods he employs in running it, he will find one very prolific source of possibility for improvement.

In this connection Jack Stowell, sheet metal contractor of Aurora, Illinois, stated, "there is no question but that a great many sheet metal contractors are making the mistake of thinking that they can compete with manufacturers in making items such as elbows, gutters, etc., and therein they are making a big mistake. In our shop we make absolutely nothing that can be bought.

"Suppose it were true that we
(Continued on Page 103)

Constructing Patterns for Folded Corners on Nickel Zinc Products

*Table Tops, Bread Boards, Kitchen Sink
Drain Boards All Require Special Treatment*

By O. W. KOTHE, St. Louis Technical Institute

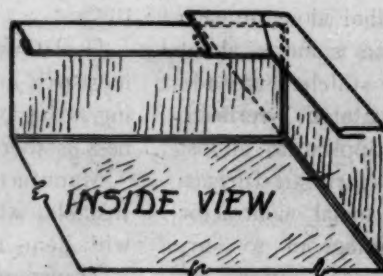
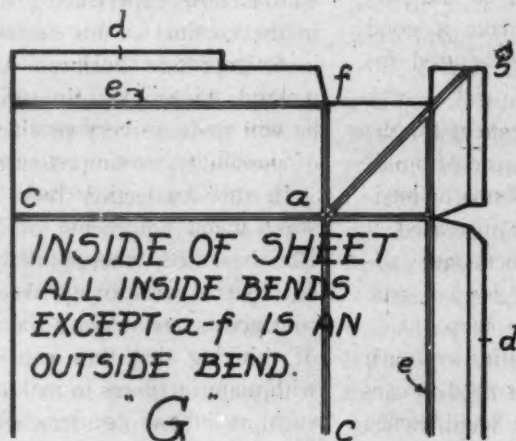
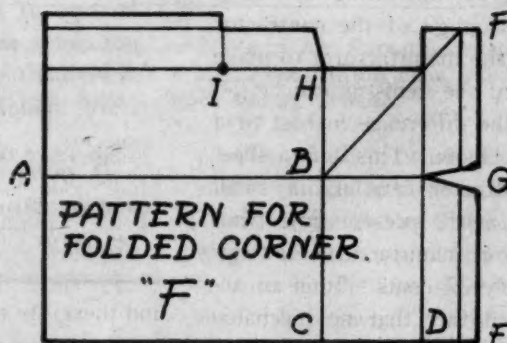
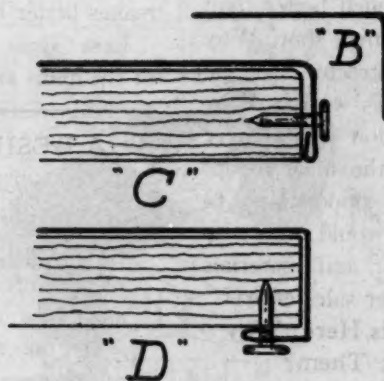
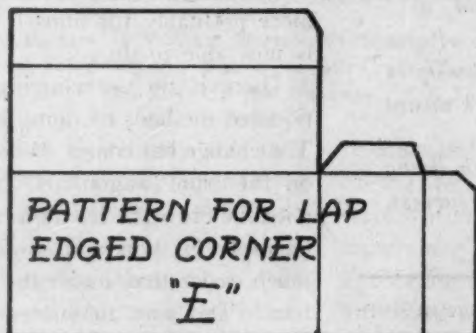
THE product, nickel zinc, is very serviceable for household purposes, as for table covering,

bread boards, shelves, kitchen sink drain boards, back lining, soda fountain drain boards, etc. The

metal, to be put on right, must be put on with understanding. A kitchen table, or cabinet top, or such



TABLE COVERING.



VIEW OF FINISHED CORNER.

other kitchen parts that are used continuously and must be kept in a sanitary condition—it is important that the metal is put on smooth.

Zinc is a bad metal for having raw edges, and will cut a person before he knows it, and for this reason care must be taken to round all corners and to hem all edges to prevent them tearing fingers or clothes.

At sketch "A" we show a finished corner giving a view how all corners should be made. It is true some just bend down the edge as at "B," and nail it on the ends; but this is poor workmanship. The under edge is raw and will easily cut dish rags or fingers, and more expensive clothing. Then, too, children always hammer and cut around and such edges would not remain long.

A better way is to hem the edge as at "C" to form a slight drip if it is desired. But a still better method is shown at "D," with the edge hemmed and turned underneath, and nailed with short barb nails.

Corners are generally cut out, lapped and soldered as the pattern "E" shows. This, of course, makes a quick job, and is suitable in many cases, but the corners are seldom rounded, and edges project themselves, so on high-class work it is not recommended. The folded corner is preferable, as shown at "F."

Here A-B-C is the part of the top, while A-D and C-D is the thickness of the table boards, and the distance D-E is the hem and under lap. This permits drawing the lines as shown. Now in bending such work the brake should be set back to make a rather rounding corner, because they are always better than the perfectly sharp ones. The sheet can be inserted in the brake, bending up the hemmed edge all around; lifting the blade of brake slowly, as this gives the zinc time to stretch, where a rapid brake will often crack because the metal has not had time to hold together.

After this bend the metal along lines a-g first, making 90-degree turns; then insert the side C-B, so the edge B-H projects past the end

of jaws. This enables bending the line C-B, while B-H will have a long, curved bend, which is straightened out again. Now with pliers bend the diagonal line B-F quite sharply and as far over as possible, after which with pliers bend the line B-H in a reverse manner, that is, opposite.

This is shown in drawing "G," where all bends as a-c, e-d, a-g are inside bends, while a-f is an outside

bend. When these are brought around by means of flat-nosed pliers the lap is produced. But before this is done, the edge "e" should be formed to slightly over a 90-degree in order to hug up closer under the table. After this the corners are laid over and the edge e-d is sprung over the board's edge, and the corners are finished off as shown at "H." Where the corners lap, a mallet should be used

Women to Be Royally Entertained During Baltimore Sheet Metal Convention

Look Over Program Below and Assure Yourself That It Will Be Worth While to Go

THE program for the entertainment of the women delegates to the National Association of Sheet Metal Contractors' Baltimore convention June 3 to 7 have been worked out in accordance with the following schedule, which will be adhered to as closely as is possible: Silver anniversary gifts.

Tuesday, June 4, 1929

11:00 a. m.—Ladies' reception, Parlors D, E, F, Lord Baltimore Hotel. Ladies' luncheon, Parlors A, B, C.

1:00 p. m.—Busses to McCormick & Company, manufacturers of Bee and Banquet brand pure food products. American Sugar Refining Company. Fort McHenry, the birthplace of the "Star-Spangled Banner." The only large port on our Atlantic Coast over which an enemy's flag has never flown.

8:00 p. m.—Informal get-together. Main Ballroom. Dancing, refreshments.

Wednesday, June 5, 1929

9:30 a. m.—Assemblée in lobby for boat trip to Annapolis, Md. Busses to steamship, foot of York Street. Luncheon on boat; ladies' session immediately after. Surprise games. Arrival at Annapolis. Convention photograph at Bancroft Hall.

3:30 p. m.—Band concert.

5:00 p. m.—Dress parade, Worden Field; presentation of prizes and awards.

6:00 p. m.—Leaving Annapolis. Dinner will be served aboard. Dancing.

9:00 p. m.—Arrival at Baltimore. Busses to hotel. Anyone missing boat can go to Annapolis by electric train, one hour's ride. Trains leave from Terminal, Howard and Lombard Streets, 40 minutes after each hour.

Thursday, June 6, 1929

9:30 a. m.—Sightseeing tour.

12:00 noon.—Luncheon and card party, with prizes, at The May Company.

7:00 p. m.—Banquet, Lord Baltimore Hotel, Main Ballroom. Dancing, card party, prizes.

Members of the Women's Auxiliary

Mrs. Philip H. Lenderking, chairman; Mrs. F. H. Baehr, chairman Thursday's Luncheon Committee; Mrs. John J. Cotton, chairman Tuesday's Luncheon Committee; Miss Irene Fingles, chairman Card Party; Mrs. Wm. Hering, chairman Surprise Games; Mrs. F. H. Beckwith, Mrs. C. E. Brandt, Miss Catherine Brandt, Mrs. George R. Bullen, Mrs. W. E. Cotton, Miss Catherine Fronhauser, Mrs. W. A. Fingles, Sr., Mrs. W. A. Fingles, Jr., Mrs. Joseph L. Hagger, Mrs. J. E. LaMotte, Miss Mary Rose, Miss E. M. Summers, Miss Agnes Richter, Mrs. George Trautner, Mrs. E. John Ward and Miss Lillian Ward.

Are You Selling — CONTROLLED HEATING SERVICE Or Just Furnaces?

SELL health, comfort and convenience, and your furnace will sell itself, is the advice of a large furnace dealer to his salesmen.

And in a general way, this is pretty sound advice; quite in keeping with the modern practice of salesmanship, which demands the selling of ideas as well as products. When a man buys a furnace he is not primarily interested in just purchasing a furnace. He is fulfilling a desire in connection with which the furnace is merely an incidental. This desire is for health, comfort and convenience. The furnace is merely the means through which the desire may be satisfied. He will be best and easiest sold on that basis.

Public Seeks Comfort, Cleanliness

The attitude of the public in this respect is very well brought out in a survey recently conducted in the interests of oil heating. Questionnaires were sent to over 1,500 non-users. Among the questions asked was, "What impressed you about the system in oil-heated house?" The replies were as follows:

	Under \$5,000	\$5,000 to \$10,000	\$10,000 to \$11,000	\$11,000 to \$20,000	\$20,000 and Over	Total
Convenience	46.0	40.3	37.1	28.3	37.1	37.1
Cleanliness	17.4	21.8	27.0	27.0	24.8	24.8
Uniformity of temp.....	6.3	21.2	23.3	27.0	22.5	22.5
Basement space	17.4	12.3	9.5	14.5	11.6	11.6
Economy	12.6	.4	2.6	3.0	3.7	3.7
	100%	100%	100%	100%	100%	100%

Thus, again, comfort, convenience and uniformity of temperature, which is another way of saying health, were the three big appeals that oil heat had for these potential consumers.

But, aside from the general trends that the table gives, there are some interesting tendencies brought out by the figures. The non-users hav-

This article points out in a brief way why it is to the advantage of the warm air furnace salesman to show the customer what the heating system as a whole will do to make life more enjoyable for the latter during the winter months of the year.

The chances are that the customer has already experienced poor heating service and messy conditions, therefore, when someone comes along and points out to him how he can rid himself of his house heating worries, he is going to take an interest immediately.

ing incomes of \$5,000 or under placed the greatest stress upon conveniences. Then, as the income class becomes higher, the appeal shifts from convenience to cleanliness and uniformity of temperature, or health. Thus, although the labor-saving element is a feature which impressed all types of non-users, still the factors of cleanliness and uniformity of temperature increased in proportion to the increase in the value of the homes, all of which bears out again the previous statement, "sell health, convenience and comfort."

Selling a customer by this method accomplishes two things. It amplifies the desire already existent in the customer's mind (he may never have even heard of your make of furnace) and he, therefore, automatically associates his desire for

health, comfort and convenience with your type of furnace, because he has confidence in your ideas. You have become an authority on the subject in which he is interested.

By the time this has been accomplished it is much easier to clinch the sale.

Most furnace buyers are not heat-

ing experts, and it is, therefore, usually a waste of time to stress the excellence of the technical features of your product. Instead of bewildering him with the mechanical details he can not understand, anyway, and which tend to make the furnace seem more

complicated than it really is, it is much smarter salesmanship to take advantage of the ideas and desires the prospective buyer already has in mind.

The most easily understandable approach to a customer's method of thinking is to illustrate the desirability of an even temperature. He has had experience with fluctuating temperatures and incessant tending of the fire, and the best sales talk will take advantage of that fact. Take up the question of the desirability of keeping the temperature lower during sleeping hours than the usual day-time level. This, physicians agree, is an essential to healthful living conditions. The same is true of variable temperatures during the day-time. Overheating is said to be one of the greatest friends of the annoying common cold.

Show him how the correct temperature levels can be kept constant, or changed at will through the application of automatic heat controlling thermostats. Explain the clock device which automatically lowers the temperature at night and raises it again in the morning. Call attention to the comfort of rising in the morning in a warm house, of the convenience of never having to worry about regulating the drafts.

It is interesting to note here that several of the largest furnace manufacturing concerns in the country

(Continued on Page 103)

New Chicago Office for Units of Union Carbide and Carbon Corporation

On May 1st the Chicago district and central division offices of various units of the Union Carbide & Carbon Corporation moved to the new 42-story Carbide and Carbon Building, Michigan Avenue and Wacker Drive, Chicago.

Units of the Union Carbide & Carbon Corporation which will make this new building their Chicago home are: The Linde Air Products Company, The Prest-O-Lite Company, Inc., Oxyweld Acetylene Company, Oxyweld Railroad Service Company, Union Carbide Sales Company, Carbide & Carbon Chemicals Corporation, National Carbon Company, Inc.; Haynes Stellite Company, J. B. Colt Company, and Acheson Graphite Company. These various subsidiaries of the corporation manufacture oxygen, acetylene, acetylene generators, cutting and welding equipment, carbon products, batteries, flashlights, chemicals, cutting tools, and a number of other products.

Building Projects Re- tarded Slightly by High Money Rates

The May, 1929, Trade Digest of the Central Trust Company of Illinois makes the following comment about building conditions:

"The alarm over a decline in building operations was not justified, and the apparent drop in building activity was almost wholly due to weather conditions.

"Building activity is greater in the suburbs and small cities than in the larger centers of population. However, March permits in the principal cities totaled 366 million dollars, compared with 226 million dollars the previous month and 337 million dollars in March of last year, the gain in permits over a year ago in these cities being 8%.

Building contracts let during March were nearly 20% less than for March of last year, but they did show an increase of nearly 35% over February.

"Contemplated projects loom larger now than they did a year ago and the total of known projects approaches 900 million dollars. This does not include the farm building and is exclusive of the Pacific Coast.

"Money market conditions are such as to retard temporarily many projects which would otherwise go forward during these early weeks of Spring. Any easing in demand for money needed in other channels will release a larger number of important building and engineering contracts, the total of which runs into several hundred millions. Not the least of these are the Government waterways and flood control work and highway-construction, including bridges, with Federal aid.

"Engineering contracts for the first quarter were more than 40% over last year and additional contracts to the amount of more than a billion dollars await some let-up in the demand for money.

Perforated Metals Attaining Wide Use in Industry and Architecture

In almost every town or city, regardless of its size, there are factories, milling plants, coal yards and the like that require the use of perforated metals. In coal mining districts perforated metals are used as screens for grading the coal. In gravel pits, quarries and mines such metals are employed as shafting guards and in sifting processes. In bottling works perforated metals are employed in the carriers.

In the oil fields the bottoms of the cassettes are equipped with such metals. Blast furnaces or foundries make use of them in handling coke and as guards for the machinery. In factories of all kinds this type of material is relied upon to provide the guards for machinery in compliance with the laws of the various states compelling protection for the workmen.

The architectural field perforated metals are used to a very large extent in the manufacture of radiator shields, wall grilles, etc. So that the business of perforating metals has

experienced considerable development in the past few years. And sheet metal contractors are being called upon constantly to erect material of this kind.

The Nortmann-Duffke Company, 1250 Twenty-seventh Avenue, Milwaukee, Wisconsin, have recently compiled and are sending out new literature and prices on the perforating of metals in which they engage.

Heating Equipment Exhibits at Chicago Own Home Show

At the Own Your Home Exposition in Chicago this week there was to be seen featured many types of heating equipment and insulating materials.

The Thatcher Company, Newark, N. J., were on hand showing a portion of their line of heating equipment.

Combustioneer, Inc., Chicago, had one of their automatic coal burners attached to a warm air furnace, demonstrating the fact that firing of coal is being made as automatic as that of gas or oil.

The Berryman System of Oil Heating, Inc., Chicago, had one of their Berryman Oil burners attached to a warm air furnace.

The Minneapolis-Honeywell Regulator Company, Minneapolis, had a very fine display of regulators so arranged as to quickly demonstrate why regulators are necessary to automatic control of the heating system.

The Temperature Control Corporation, Chicago, were exhibiting their Guardian heat control apparatus to good advantage.

Among the gas-fired furnaces were seen that of the Columbus Heating and Ventilating Company, the product of the Scientific Heater Company, a garage heater, and the furnace of the Bryant Heater Manufacturing Company.

With insulating materials present there were the Celotex Company, the Masonite Corporation, and the Wood Conversion Company.



Al Kundee

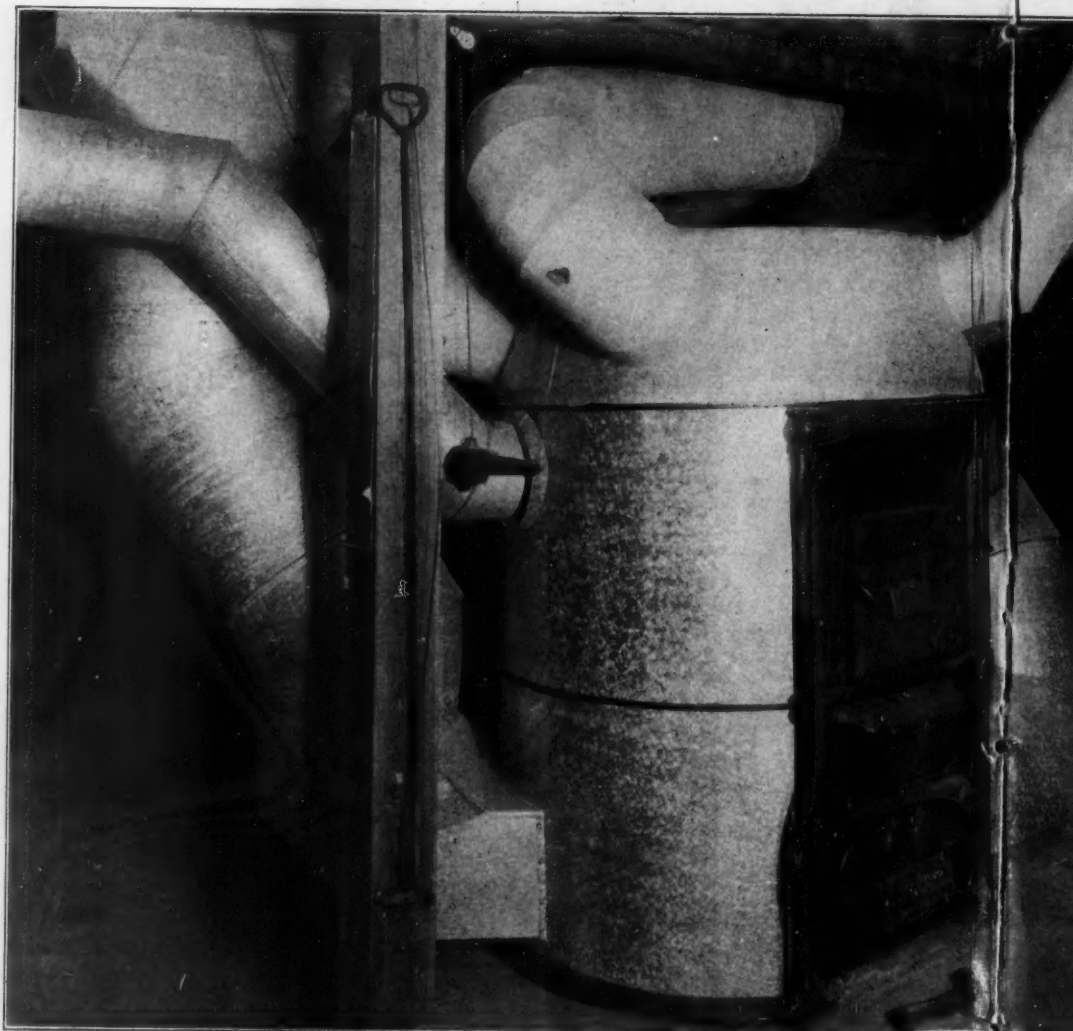
Heating Engineer of the Premier Warm Air Heater Co., Dowagiac, Michigan, in an Interview with the Editor Gives Some Good Common Sense Pointers on Cold Air Duct Construction.

THE Standard Code method of installing warm air furnaces, which has been accepted for the past five years as the most effective way of insuring proper functioning, has made a splendid record for itself in that it has brought the warm air heating business "out of the woods." It should be thoroughly understood, however, that the Standard Code is not a blanket with which to cover carelessness or slipshod methods. It was the desire of the compilers of the Standard Code and those who brought it to its present state of perfection to provide an instrument that would indicate to furnace installers the minimum requirements for good work, also to give them the benefit of best practice as divulged by the research work at the University of Illinois and the experience of trained heating engineers. The compilers recognized the fact that as the research work progressed the code would have to be altered from time to time before ultimate perfection is attained.

But regardless of how well they may have succeeded in their efforts, the compilers of the Standard Code

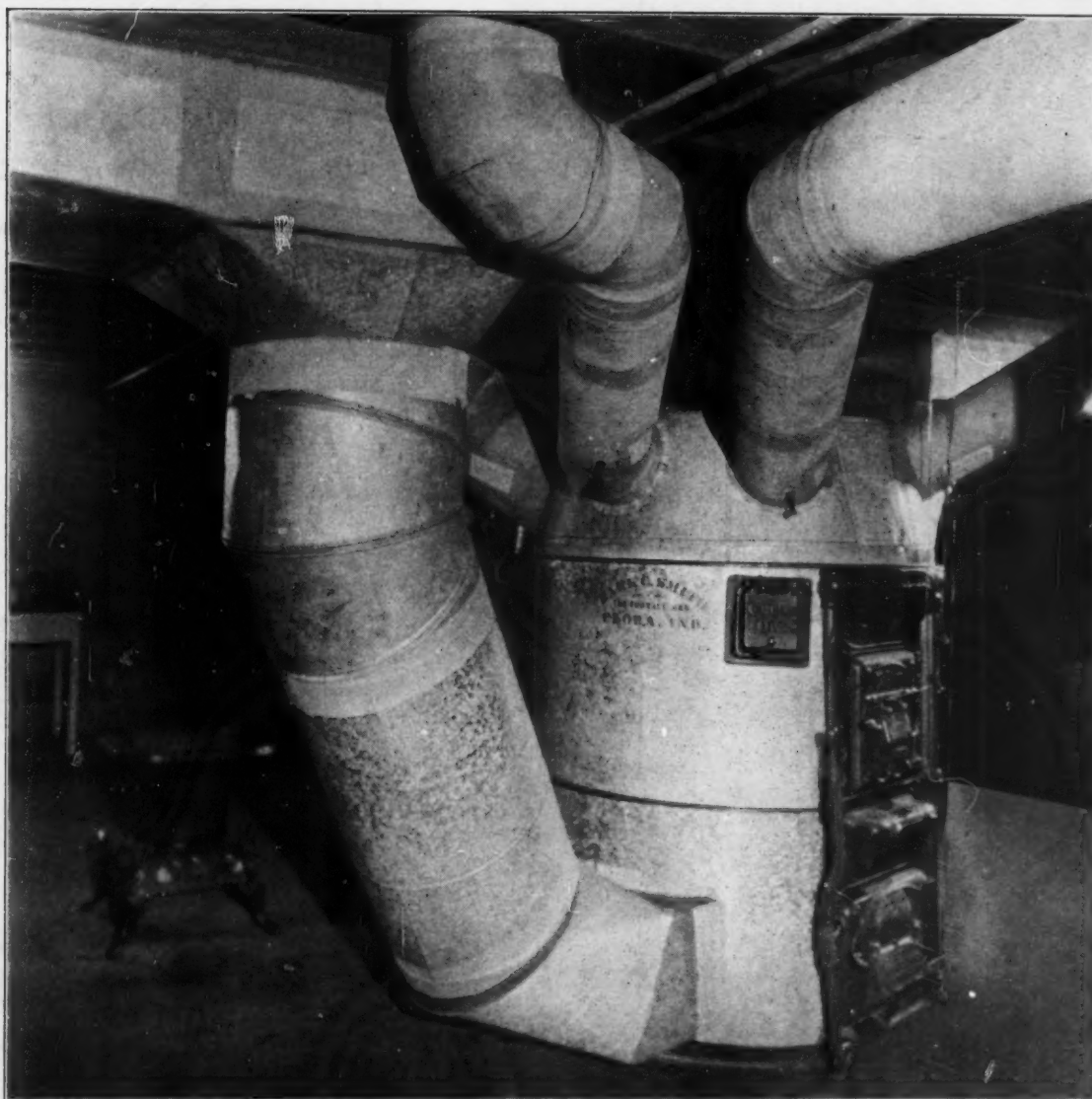
"Keep Your Cold Air Co

and—make sure your cold air r the proper chance to deliv by eliminating abrupt t Kundee, in this interview, he does it and explains t tance of division plates.



Cool"

old air return has
to deliver its load
brupt turns. Al
terview, tells how
explains the impor-
lates.



The photo above shows an Installation of Earl Smith, Flora, Indiana, illustrating Best Type of Cold Air and Transition Construction. Below — Installation of Gleun W. Rynbrand, Kalamazoo, Michigan, illustrating Another Principle Outlined by Mr. Kundee.

have not removed the necessity for the application of good judgment on the part of the furnace installer in using the Standard Code. It is perfectly possible for the furnace installer to imagine that he has complied with the Standard Code in every respect and still find himself in a mess because the job does not function as per contract. In which case, if he is not overly encumbered with intelligence, he will condemn the Standard Code, denouncing it with all the fervor of a religious fanatic, when it is his own judgment that is at fault.

The installation of cold airs, for instance, can become a very potential source of trouble to the installer if he does not watch himself closely. To understand thoroughly why this is true, the installer must first realize that in a gravity warm air heating system the only motive head present is that which is generated by the furnace in warming the air. And it does not require a great deal of resistance to effect an unbalance. It is, therefore, easy to understand that even though both the warm air runs and the cold air returns are of proper size to take care of the requirements, if for any reason the air is obstructed on its way to the furnace by reason of turbulence or proximity to furnace casing or smoke pipe, a condition of unbalance is going to be created that will materially affect the operation of the heating plant.

It is pretty hard to imagine a furnace installer who still refuses to conform to the practice of using a transition piece between the cold air pan and the vertical duct, or to effect the transfer of the air from the vertical duct to the cold air shoe, but there are still many of them who are doing that very thing. A little thought on the subject would quickly convince any installer that he can get more "gas" into the tank of his "flivver" by using a funnel than he can by pouring the liquid into a container having just an ordinary pipe projecting through its bottom. And still many of these men will insist that there is no gain in using the transition. Plain stubbornness, pure and simple.

The air in a cold air return placed too close to the casing or too close to a warm air run or the smoke pipe
(Continued on Page 104)

Trip to Annapolis Naval Academy One Feature of National Sheet Metal Convention

Trade Development Committee Will Report Completion of Biggest Tasks Ever Attempted

ATENTION! Don't forget the twenty-fifth annual convention of the National Association of Sheet Metal Contractors, to be held at Baltimore, Md., June 3-4-5-6-7, 1929.

The committees of ladies and local members are putting forth every effort to make this Silver Anniversary a big event and solicit your cooperation by visiting their city and helping to make this convention the greatest one in the history of the organization.

There will be many interesting as well as entertaining and educational features, important business sessions, talks and discussions by representative people of the industry. Note the wonderful trip to the United States Naval Academy. It is the graduating week of the Midshipmen.

Include this trip in your vacation plans and profit by the growth and development of this seaport, as well as the benefit derived by meeting your fellow workers from all over the country. There will also be exhibits, all grouped on one floor, showing progress in our line of trade.

Meet us at Baltimore, Md., June 3-4-5-6-7, 1929.

Railroad Certificate Plan, 250 Required

When purchasing railroad tickets ask for certificate receipt. Sale starts May 31 to June 6. Certificates will be validated at the conroad representative will be present to validate the certificates which will entitle you to half fare returning, good until June 11. The official convention Thursday afternoon. A railprogram will not be completed before May 15.

Trade Development Committee Has Important Announcement

The Trade Development Committee have completed one of the largest tasks ever attempted by any national organization in the building industry. After years of hard work they will make their final report at this convention, the successful completion of the biggest asset to the sheet metal industry in general. Don't fail to be in Baltimore to get this information at first hand. It will pay you.

Naval Academy Trip a Big Feature

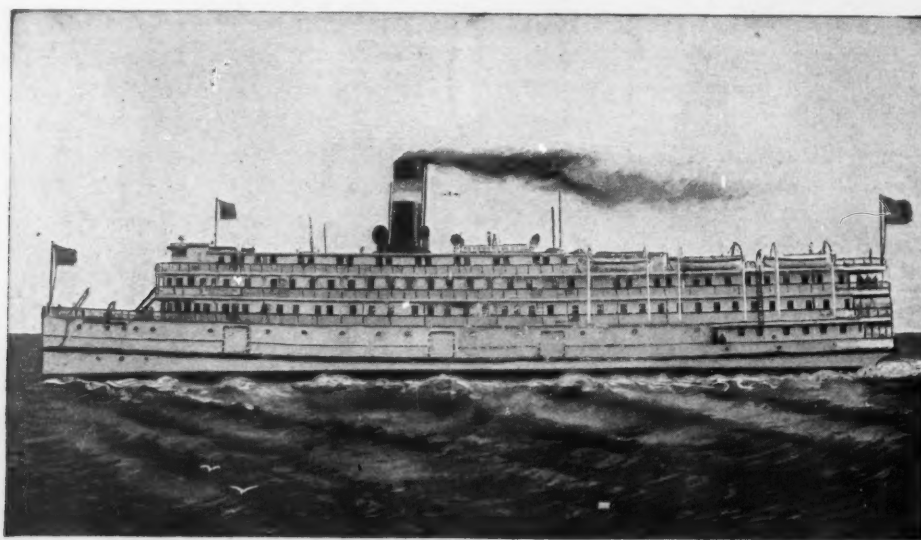
The trip to Naval Academy, An-

napolis, Md., will be worth coming to Baltimore for if there were nothing else on hand. A large steamship has been chartered. Leaving Baltimore, there is a splendid view of all the activities in the harbor, passing many historical points. Arriving at Annapolis, the convention photograph will be taken at Bancroft Hall. At 3:30 p. m. the Naval Band concert; 5 p. m. Naval dress parade with presentation of prizes and awards. Leaving Annapolis, dinner will be served, music and dancing. Arriving at Baltimore, busses will convey those attending to the hotel. Anyone missing boat, which sails at 10 o'clock, foot of York Street, can go to Annapolis by electric train, one hour's ride; trains leave Terminal, Howard and Lombard Streets, 40 minutes after each hour. So you won't be left out.

Thursday afternoon session will be devoted to warm air furnace interests. General sheet metal industry has not been neglected. There will be plenty of good stuff here.

Golf.—The Entertainment Committee will be glad to make arrangements for visiting guests who desire to play golf. Full particulars may be obtained at information bureau.

You can easily see that it is going to be well worth your while to attend this Silver Anniversary convention.



This Is the Steamboat Which Has Been Chartered to Take Conventionites to Annapolis. Dinner Will Be Served on Her on the Return Trip

CONTROLLED HEAT*(Concluded from Page 98)*

have recently revised their sales plan and instructed their branches and dealers to sell furnaces along these lines. Furnaces of these firms are now to be sold with the aid of the regulator arguments—health, comfort and convenience.

Economy Angle Also Being Stressed

There is also a fourth angle of approach. The heat regulator is a fuel saver. It prevents loss by overheating, during both day and night. Lost efficiency through allowing the fires to die down too far is also prevented. Scientific investigation has shown that from one-fifth to one-fourth is saved in fuel bills.

While the heat regulator is actually an accessory, the prospect begins to look upon it as an essential part of the furnace and the salesman has answered and amplified the very questions he had in mind. It then becomes obvious to him that the salesman knows what he is talking about, and he is much more willing to take his word about the merits of his own particular furnace without going into technical details.

In other words, the thermostat has been used as an inducement to buy this particular furnace and at the same time has exhausted the prospect's store of doubts and arguments—known as sales resistance. Thus this sales resistance is given a figurative body blow, and the task of selling furnaces made correspondingly easier.

Incidentally, the salesman has not only sold a furnace, but also an accessory. By the proper application of modern sales principles, two sales have been made, and made more easily than either individually.

**Hart & Cooley Register
Mfg. Co. Enlarging
Office Space at Chicago**

The Hart & Cooley Register Manufacturing Company, New Britain, Connecticut, has enlarged its quarters at 61 West Kinzie Street, Chicago, and according to R. W. Blanchard, President of the com-

pany, a great deal of the detail work which was formerly taken care of at the home office will now be done at Chicago, in order to facilitate the service which the company gives to its customers in the mid-west and western territories.

Mr. Blanchard believes that the entire heating industry is in a state of evolution at the present time; that the warm air heating industry is at the lowest ebb now and is slowly recovering from some of the grievous errors it has made in the past; that its competitors—steam and hot water—are now entering an era of competitive work which is almost certain to leave them in the same situation which the warm air heating industry has experienced in the recent past and from which it is now slowly but happily emerging.

It is Mr. Blanchard's opinion that the warm air heating industry has paid a pretty dear price for the errors it has made and it is his hope that every care will be exercised by the warm air heating industry in the future so to conduct its affairs that it will expand to its rightful limits on a basis of giving every customer 100 per cent heating service for the money spent. Only on such a basis can the industry re-establish itself permanently in the good graces of the public. That is going to require a lot of hard, conscientious work, in Mr. Blanchard's opinion.

In fairness to Mr. Blanchard let it be said that if every one in the warm air heating industry worked as steadfastly to bring about that condition as Mr. Blanchard himself is doing, it would not be a very great while before the American public would have a true appreciation of the real merit in the warm air heating system as installed according to the Standard Code.

ARE YOU PROGRESSING?*(Concluded from Page 95)*

could probably buy any one of the items two, three or even five cents cheaper than the manufacturer's price, we would still be losing money if we made them up ourselves. We would not only be tying up capital

in labor and materials upon which we would have to charge overhead and interest, but we would be spending time that can be much more profitably spent in selling and erecting.

"Any contractor who wishes to do so can prove to himself conclusively that he can put more money into his pocket by purchasing as many of the items as he possibly can by merely installing an adequate bookkeeping system. If he will do this, he will soon see where his money is going and he will soon see that the manufacturers of furnace pipe and fittings and the manufacturers of elbows, gutters, downspouts, etc., are his friends.

"It stands to reason that a manufacturing establishment established on a large scale production basis is going to be able to introduce economies in labor that are impossible in the small shop. Why then should the contractor try to compete with the manufacturer when he can use them to his own advantage?"

**Here's Business
for Roofing Material
Manufacturer**

The following letter has been received from O. E. Hutchison, Vice-President and Manager, Kirchdorfer Hutchison Company, Louisville, Kentucky, which should be of interest to roofing contractors:

"Within sixty days we will decide on a roofing that we can recommend to the architects in this locality and we will be glad to hear from any manufacturer who has not a representative in this locality.

"We have been sub-letting built-up roofing for the past four or five years, but now propose to select the very best roofing we can find to be applied by our own labor and under our own supervision.

"We believe that the time has now come when architects all over the United States will specify their roofs to be applied according to the standards approved by the specifications known as the Master's specifications, as approved by the Treasury Department at Washington, D. C.

KEEP COLD AIR COOL*(Concluded from Page 101)*

has an excellent chance of becoming heated on its downward path and reversing its direction of flow, or at least of slowing up the flow.

Al Kundee, Heating Engineer of the Premier Warm Air Heater Company, Dowagiac, Michigan, knows a lot about the chances for the furnace installer to go wrong on his Standard Code work, and what he has to say on the subject will be of great interest to the warm air heating industry as a whole.

"We cannot emphasize too strongly the importance of cold air duct construction. It is not necessary that cold air grilles be located on outside walls or in the remote corners if a shorter and more direct connection with less angles or bends is permitted by some other location. We are in favor of the most direct connection. In other words, ducts should be as short as is practical, but they should not drop down along the side of the furnace casing. When it is necessary to use a pan to carry the air to the duct there should be a slight pitch downward for the same reason that warm air pipes should pitch upward.

"All abrupt turns should be avoided. Think of a flow of air in the terms of a stream of water—think of the eddies at sharp curves and the sluggish motion on a flat surface.

"Therefore, it is necessary that provision should be made for increased size of duct required when necessary to use extra long ducts, pans or boxes.

"We suggest that extra long ducts or pans be given 10 per cent more capacity than the area of the duct feeds. Also 10 per cent should be added for each abrupt turn in the pan or box.

"Care should be taken to place the return ducts in such locations that they will not be heated by warm air pipes, furnace casing, smoke pipe, hot water tanks, hot water pipes or other heaters.

"The following tables will be found useful in calculating return duct sizes. For example, let's take

a return duct that requires 360 square inches and only three joist spaces are available. The wood grille in the floor must then be 16 inches wide, and if the joist is 7½ inches deep it must have a pan deep enough to carry at least 121 inches, or 2 inches below the joist. As we are using three spaces, 363 inches will be started to the furnace.

"In connecting a round pipe to a box or pan, a boot or funnel shaped connection should be used having a good depth below the face or pan to make the box or duct efficient.

"Don't forget that the Standard Code says to connect the duct pans with transition boots, having 10 per cent more area at the top than the connecting pipe. In this problem the top of the transition should be 12x36 inches.

"The connection of the return air duct at the casing is very important. The shoe should always be built as low as can be and still maintain the area of the return pipe and be of transition type. If it is necessary that the shoe extend higher than the top of the ash pit, a shield should be suspended midway between the ash pit and the shoe, and it should hang about 4 inches higher than the top of the ash pit. This shield will intercept the ray of radiant heat from the firepot castings. If only one shoe is used, it should be placed at the back of the furnace as near the center as possible in order that the stream of air supply may divide and pass in equal amounts around the furnace.

"If two or more shoes or boots are used, a division plate should be installed. I would like to emphasize that it must be installed inside of the casing, reaching from the casing to the ash pit, and be at least the height of the top of the shoe.

"If the cuts are not equal in area, the partitions should be placed so that they will divide the space in the casing equally. Where a number of small returns are connected into larger ducts or in the basement pan or pipe, care should be taken to use some means of causing the air to join the main stream after it has attained the same direction of flow."

The two accompanying illustrations are excellent examples of good practice in the installation of cold airs, the use of transitions and proper type boots. They were made respectively by Earl C. Smith, Flora, Indiana, and Glenn W. Rynbrand, Kalamazoo, Michigan, two warm air furnace dealers who handle the Premier line.

WHO'S WHO, WHERE?

OREGON CITY, ORE.—A. F. Bierman, 421 Main Street, has admitted Ben L. Beard to partnership in his tinning and heating business, and the firm is now Bierman & Beard.

FLORENCE, ORE.—D. W. Reisman and Grant Treat have formed a partnership and engaged in the carpentry and sheet metal business.

MINNEAPOLIS, MINN.—The Bloomington Sheet Metal Works, 3736 Chicago Avenue, has been awarded the sheet metal contract for factory of McQuay Radiator Co.

MOOREHEAD, MINN.—The Ford Furnace Co. has the warm air heating contract for school at Watts Siding, near there.

SIOUX CITY, IA.—The Norfolk Furnace Co., 8th and Division Streets, has the warm air heating contract for residence of O. R. Nelson.

WATERLOO, IA.—The Bennett Heating Co. has the warm air heating contract for residence of Earl E. White.

The L. E. Glaze Furnace & Sheet Metal Co., 811 Commercial Street, has the warm air contract for residence of Mrs. A. M. Chamberlain.

The John G. Wright Sheet Metal & Furnace Works, 513 Jefferson Street, has the warm air heating contract for residence of Frank Kipp.

DAVENPORT, IA.—R. Claussen, 517 West Second, has the warm air heating contract for residences of Harry Voris and E. S. Whonsetler.

SAN FRANCISCO, CAL.—Construction has been started on \$20,000 plant for the Ace Sheet Metal Works, on Tehama Street, near Fifth.

The Fire Protection Products Co., 1101 16th Street, has been awarded the sheet metal work contract for the telephone building in Watsonville, Cal.

LOS ANGELES, CAL.—The Hodge Sheet Metal Works, 5851 South Broadway, has been awarded the sheet metal contract for the Continental Can Co. factory building.

The Edmonds Sheet Metal Co. has the sheet metal contracts for the school buildings at Southgate, Cal.

The Main Cornice Works has been awarded the sheet metal contract for high school in the Bell district.

MCALISTER, OKLA.—J. J. Arendal has been awarded the roofing and sheet metal contract for the \$700,000 Scottish Rite Temple.

ST. LOUIS, MO.—The Collins Sheet Metal Works, 912 W. Markland street, has been awarded the sheet metal work contract for the \$375,000 Simmons National Co. bank and office building in Pine Bluff, Ark.

BIRMINGHAM, ALA.—Hinkle Brothers have been awarded the roofing and sheet metal contract for the \$500,000 addition to the Hotel Printup in Gadsden, Ala.



Repairs for "Bolens" Gasoline Lawn Mower in Chicago

From a Subscriber:

Please tell me who in Chicago handles the "Bolens" gasoline lawn mower, which is made by the Gilson Heating Company at Port Washington, Wisconsin. I am in the market for repairs for this mower.

Ans.—S u r t y Manufacturing Company, 4139 West Kinzie Street.

Furnace Vacuum Cleaners in Chicago

From Dependable Roofing and Material Company, 3169 Milwaukee Avenue, Chicago.

I should like to know which of the furnace vacuum cleaner manufacturers have a Chicago office.

Ans.—Brillion Furnace Company, 228 North La Salle Street; B. F. Sturtevant Company, 410 North Michigan Avenue; and Williamson Heater Company, 589 East Illinois Street.

Aluminum Sheets

From Frank Wintz and Son, Viroqua, Wisconsin.

Will you kindly inform us where we can buy aluminum sheets?

Ans.—Aluminum Company of America, 360 North Michigan Avenue, and Steel Sales Corporation, 129 South Jefferson Street; both of Chicago.

"Domestic" Gas Range

From "Forshaw" of St. Louis.

We are anxious to find out who manufactures the "Domestic" gas range. Have you any record of it?

Ans.—A gas range called "Domestic" is made by Trenkamp Stove and Manufacturing Company, Cleveland, Ohio, and by Malleable Steel Range Manufacturing Company, South Bend, Indiana.

Waterproof Canvas

From George B. Cummings, 710 4th Avenue, S. E., Minot, North Dakota.

I should like to know who manufactures or jobs waterproof canvas for truck covers.

Ans.—George B. Carpenter and Company, 440 North Michigan Avenue, and Hyde Park Awning

Company, Inc., 4508 Cottage Grove Avenue; both of Chicago.

Chimney Cleaning Brushes

From Ace Sheet Metal Works, North 27th and Proctor Streets, Tacoma, Washington.

Can you tell me who makes wire brushes for cleaning chimneys?

Ans.—Bromwell Brush Company, Cincinnati, Ohio; The Milwaukee Brush Manufacturing Company, 770-790 30th Street, Milwaukee, Wisconsin; Pilley Packing and Flue Brush Manufacturing Company, 608 South Third Street, St. Louis, Missouri.

"Hero" Furnaces and Room Heaters

From Smith and Dorman, 512 "I" Street, Grant's Pass, Oregon.

Can you tell us who makes "Hero" warm air heaters and room heaters?

Ans.—The "Hero" furnaces are made by Standard Foundry and Manufacturing Company, De Kalb, Illinois. "Hero" warm air room heaters are made by J. V. Patten Company, Sycamore, Illinois.

Information on Approved Oil Burners

From Frank Davis and Company, 266 Percy Street, Elgin, Illinois.

Can you advise us where we can secure information on oil burners which are approved by the Underwriters, and a list of the approved burners?

Ans.—Underwriters' Laboratories, 207 East Ohio Street, Chicago, Illinois.

Pressure Relief Valves

From C. H. Myers, 108 South Broadway, Bucyrus, Ohio.

Who makes pressure relief valves from 1 to 4 lb. pressure for a 2-gallon copper tank?

Ans.—The Ashton Valve Company, 565 West Washington Boulevard, and A. W. Cash Company, 549 West Washington Boulevard; both of Chicago.

Filters for Warm Air Furnaces

From David H. Owen, 2104 Eighth Street, Meridian, Mississippi.

Please inform me who makes filters for warm air furnaces.

Ans.—F. Meyer and Brother

Company, Peoria, Illinois, and The Warm Air Furnace Fan Company, 6511 Cedar Avenue, Cleveland, Ohio.

Brass and Copper Screening

From C. L. Epps, 229 North Washington Street, Van Wert, Ohio.

I should like to know who makes brass and copper screening about four mesh to the inch, of No. 14 wire.

Ans.—F. P. Smith Wire and Iron Works, 2346 Clybourn Avenue, and The W. S. Tyler Company, 310 South Michigan Avenue; both of Chicago.

"Gainaday" Electric Washing Machine

From Julius Hauser and Son, corner Fulton and Maryland Street, Evansville, Indiana.

Can you tell us who manufactures the "Gainaday" electric washing machine?

Ans.—Pittsburgh Gauge and Supply Company, Pittsburgh, Pennsylvania.

"Harrison" Radiator Cores

From J. H. Barnett, 312 Front Street, Dodge City, Kansas.

I should like to know who makes "Harrison" radiator cores.

Ans.—Harrison Radiator Corporation, Lockport, New York.

Wire Cloth

From W. J. Vierck & Sons, East State at North First, Rockford, Illinois.

Please tell us who makes wire cloth, galvanized after weaving.

Ans.—American Wire Fabrics Corporation, 208 South LaSalle Street; F. P. Smith Wire and Iron Works, Fullerton and Clybourn Avenues, and The W. S. Tyler Company, 310 South Michigan Avenue; all of Chicago.

Sheet Steel Executives Arrange for Meeting June 24-27

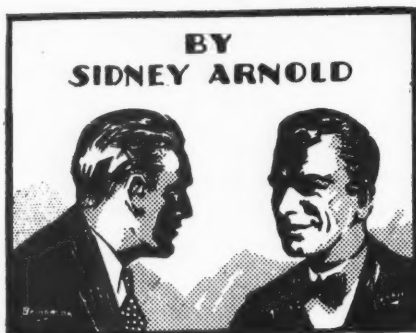
Executives of the flat rolled steel industry will meet for their annual informal conference at Hotel Greenbriar, White Sulphur Springs, W. Va., June 24-27. Officials attending the meeting will represent, to a large degree, the nation's steel sheet, hot strip and cold strip productive capacity. Featuring the usual pertinent program now being arranged will be addresses by several speakers of national prominence. A. N. Flora, 511 Terminal Tower, Cleveland, is secretary of the conference.

RANDOM NOTES AND SKETCHES

I certainly am having plenty of courtesy calls since moving. On Monday of this week who should drop in but Ralph Blanchard, President of Hart & Cooley Register Manufacturing Company, who happened to be in town for a day or so. Mr. Blanchard was accompanied by Fred Heads, his right hand man in this neck of the woods. If there is any man that really does travel, it is R. W. Blanchard. I never see him but what he is just arriving or leaving for some distant point, making scheduled stops all along the route. He only returned recently from the west coast and was as far east as New York City as recently as last week. He expects to be at the National Convention in Baltimore, but he probably will have been down in Texas, up in Minneapolis and several intermediate points between now and then. He certainly is one of the most vital "Birds" I have ever had the pleasure of becoming acquainted with. I believe that he is, however, overlooking an opportunity of making a lot of money easy by not subscribing to some breakfast food. Ralph's hobby is golf, so if he were going to recommend anything, it would perhaps be golf shoes or golf balls. He never uses any of that peculiar liquid generally found at the "19th" hole, so, of course, he couldn't carry his recommendations into that field. I was very glad to see Ralph and Fred, and they are both looking as though lots of work agreed with them perfectly.

* * *

And then there was Jimmy Miles, Vice President of the Warm Air Furnace Fan Company, who came in the latter part of last week between trains. Jimmy is another of those "peppy" individuals who is constantly on the go. So rapidly



does he pass to and fro over the country that no one can ever keep track of him. It is certainly very nice of all these men to drop in even if they only do stay a moment or two and I appreciate it very much indeed.

* * *

I'm wondering if there are any Scotchmen in the warm air heating business in Akron, Ohio. If there are, it is a dead sure cinch that they will always have pennies in their pockets. The new franchise agreed upon by the city council of Akron and the street car company provides for an 8-cent fare, provided the passenger has the correct change. If the conductor is called upon to make change, however, the passenger will be charged a thin dime. I'll have to call upon my good friend Charlie Pfahl of the XXth Century Heating and Ventilating Company, Akron, to explain things. Charlie's pretty good at explaining things. That's why they made him President of the local Warm Air Heating Contractor's Association.

* * *

The new "stenog" looked like a million dollars. "Class" was written all over her. The office force in accord acclaimed her "some dame."

Then she opened her velvet lips



and said to the office boy: "Say, Bozo, ain't there no carbon paper around this dump?"

* * *

No Wonder Joe Is Busy

Willie: "Pa, teacher says we are here to help others."

Joe Mattingly, his pa: "Yes, that's so."

Willie: "Well, what are the others here for?"

* * *

"I understand Jones has been given a medal by the Society for Pharmaceutical Research."

"Yes, he has invented three new types of sandwiches."

* * *

I was thinking the other day as this little story occurred to me how nice it would be if furnace installers' wives could only do something to improve their husbands' businesses:

Has an Eye For the Main Chance

The young doctor sat down wearily in his easy chair and turned to his wife affectionately.

"Has my darling been lonely?"

"Oh, no," she said. "At least not very lonely. I've found something to do with my time."

"Oh," he said; "what is that?"

"I'm organizing a class. A lot of women are members, and we're teaching each other to cook."

"What do you do with the things you cook?" asked the doctor.

"We send them to the neighbors."

"Dear little woman," he returned, kissing her. "Always thinking of your husband's practice."

* * *

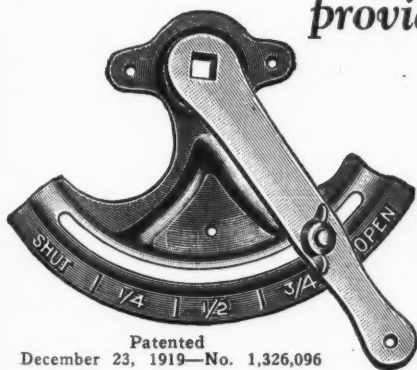
A. F. Frazee, Rudy Furnace Company: "It is said that paper can be used effectively in keeping a person warm."

L. A. Denoyer: "Yes, I remember a thirty-day note once kept me in a sweat for a month."

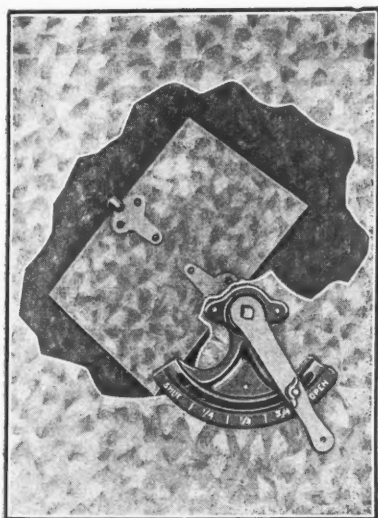


In the largest and finest buildings HYRO DAMPER QUADRANTS

provide positive damper control



Patented
December 23, 1919—No. 1,326,096



*View of a Quadrant installation with
part of the duct cut away to
show the damper.*

HYRO DIAL DAMPER REGULATOR



Patented
December 9, 1919
No. 1,324,620

PROMINENT architects and leading heating and ventilating engineers recommend the use of Hyro "UNXLD" Damper Quadrants; thousands of sheet metal contractors use them; and more than 650 jobbers sell them, because they are the simplest, neatest and most efficient device yet designed for regulating dampers in hot and cold air ducts, smoke pipes, dust arrester systems, etc.

Hyro "UNXLD" Damper Quadrants and Hyro Dial Damper Regulators are easy to install, either to flat or curved surfaces. They lock the damper at any desired angle—assuring positive control of the passage of air. They are simple in construction—few parts—nothing to get out of order.

Made in 5 sizes for regulating dampers from the smallest to the largest.

Send for bulletin giving full information on Hyro "UNXLD" Damper Quadrants, Hyro Dial Damper Regulators, and other time-and-labor-saving damper accessories.

Other HYRO Time-and-Labor-Saving DAMPER ACCESSORIES

HYRO DAMPER ROD CLIPS



Patented
April 4, 1922
No. 1,411,745

Offer a quick and easy means of fastening square rod to dampers, eliminating the necessity of drilling the damper rod which weakens it. Made for the following sizes of square rod: 3/8", 1/2", 5/8", 3/4" and 7/8". Furnished in galvanized finish only.

HYRO DAMPER BEARINGS



Used instead of rods on small and medium size dampers. Quickly attached. Made in two sizes—3/8" to fit 3/8" Damper Quadrants or Dial Damper Regulators and 1/2" to fit 1/2" Damper Quadrants. Furnished in galvanized finish only.

HYRO MANUFACTURING CO., INC.

Sheet Metal Workers' Tools
and Hardware Specialties

202 VARICK STREET

NEW YORK

Distributed in Canada by Aikenhead Hardware, Limited, Toronto, 2, Canada

Steel Needs Tax Producers

*Non-Ferrous Metal Demand Continues
Light—Prices Unusually Steady*

PRESSURE for prompt delivery of finished steel is substantially as insistent as at what apparently was the peak of the spring consuming bulge 30 to 45 days ago. Incoming business in most products, however, continues to fall slightly short of shipments, but the shrinkage is milder than might have been expected with the industry well into its fifth consecutive record month of production and consumption.

Third quarter business has not been large, but increasingly it commands attention, for one reason because mill capacity for some important products is engaged through this quarter. Usually when consumers seek a place on mill books for the next quarter the price is left open. For seasonal reasons the third is not usually a propitious quarter for advancing prices, but the strong situation in pig iron and semifinished steel may point the way.

Ingot production in April, while 2.4 per cent off the all-time record of March, nevertheless surpassed all previous April efforts. With operating rates in the Pittsburgh and Chicago districts at practical capacity and Youngstown district mills this week turning out the greatest tonnage since October, there is an outside chance of May setting a new top.

The pig iron market in Pittsburgh is firming up to the higher levels announced several weeks ago. Although new buying is not brisk, recent sales were made at the new figures and the tone of the market is strong. The sale of about 5,000 tons of basic to an Ohio steel works at \$18.50, valley, follows a larger transaction in this grade at the same price a week ago. Sales of bessemer are noted at \$19. Foundry iron sales still are limited to small fill-in lots, all at \$18.50 base, valley.

Shipments are steady and well ahead of new business. Consumers

are not yet active in placing third quarter business.

Shipments of northern pig iron at Chicago continue at the April rate. Spot orders for piecing out second quarter are in steady volume.

Additional third quarter tonnage has been placed, and quiet negotiations are on for several good size orders for that period. The past few days have seen a spurt in demand for high silicon grades and specialty iron.

Several tonnage sales of silvery iron are reported. A cargo of English low phosphorus iron is expected to dock in Milwaukee territory shortly. Spot and future sales of northern pig iron are reported on the basis of \$20, Chicago furnace.

Eastern lake furnace iron still due here from sales earlier in the season totals 12,000 to 15,000 tons, comprising about four cargoes, in addition to three cargoes already received. One cargo is reported enroute to this district.

A little more iron has been moving recently in the Birmingham territory, but the market is quiet. Sellers claim to be holding to \$15.50, base, Birmingham, though reports still are heard of concession of 50 cents in outside territory.

A large quantity of foundry iron has been placed on furnace yards, and further curtailment of production is scheduled for the present month, two stacks to be blown out.

Buying of nonferrous metals continues light, but shipments against old orders remain large. Advanced shipment is being asked on copper. Prices held unusually steady the past week.

The scrap copper market continues to strengthen. Differentials under new metal are narrowing.

New buying of mill products has been light, but the mills are operat-

ing at a high rate. Backlogs are being cut down.

Copper

Shipments in April continue remarkably close to the record level established in March. Production increased and stocks of refined metal gained about 4,500 tons.

Total stocks of blister and refined copper increased nearly 17,000 tons to about the level of a year ago. Refined stocks, however, are 15,000 tons lighter than on May 1 a year ago.

Domestic shipments so far this year have surpassed the movement in the first four months of any year. Export shipments, on the other hand, have fallen behind those of the corresponding four months a year ago. It is believed export buying will be forced into the market on a larger scale soon.

The reason for this is that producers still have large order books ahead and are not likely to push the market. Indications point to larger domestic shipments in May than in April.

Zinc

Prime western prices have been uncertain in the past week on account of light buying and varied prices. Publication of April statistics was followed by sales as high as 6.65c, East St. Louis.

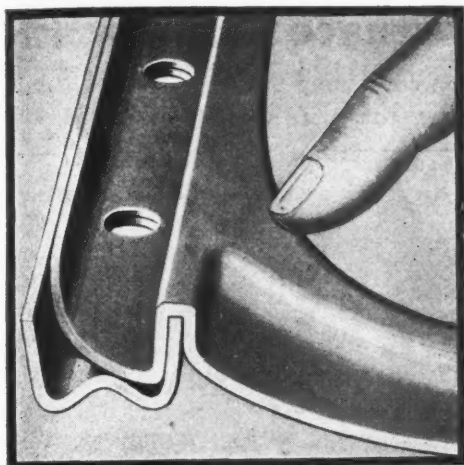
Small sellers, however, became anxious and business was done at less than 6.60c, with rumors of as low as 6.50c. In the past day or two the market has appeared firmer again. Zinc ore is unchanged at \$44 a ton.

Tin

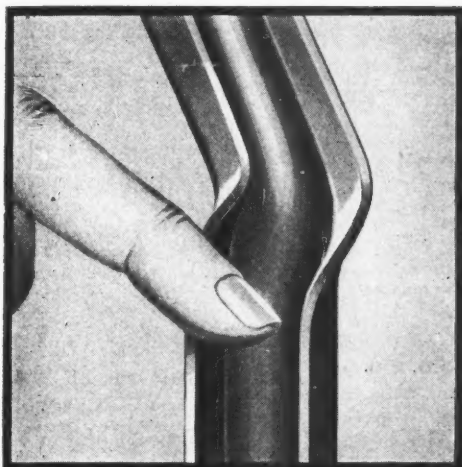
After the market had firmed up for about a week, prices became easy again on account of slack buying. Consumption continues extremely large.

Lead

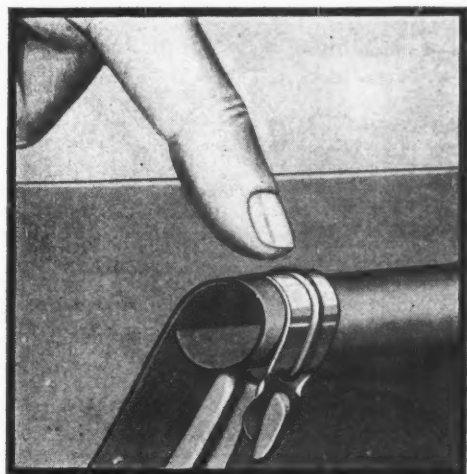
Buying has been light, but users appear to be not very fully covered for June needs.



Note how circle locks on shank. If the bolt should work loose through vibration, the weight of the gutter would still be on the shank.



Double-channeled construction at bend (shown in middle picture) gives 50% more strength than any other type of No. 12 shank, yet permits bending to meet roof pitch.



The rust-proofed coated bead clip rolls easily over the gutter bead and holds absolutely firm without solder.

The pictures tell why Lupton Hangers are best

WINTER BLIZZARD or a summer thunderstorm, Lupton Hangers carry the load without strain. Because they're built on scientific principles of engineering. Strength is put where it will do the most good.

Study the three diagrams at the left. They emphasize the superior features of Lupton Hangers. The positive lock of circle on shank. The double-channeled band. The rust-proofed coated bead clip, that can be put on without solder and saves time. It reduces the replacements made necessary by rust.

The Lupton Hanger can be obtained in any of the metals regularly used for roofing accessories. Its quality is worthy of the LUPTON name. It will stand any test you wish. Examine the Lupton Hanger at your jobber's. Or write us for a sample. David Lupton's Sons Co., Allegheny Ave. and Tulip St., Philadelphia.

LUPTON HANGERS



Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

METALS

PIG IRON

Chicago Fdy.,	
No. 2	\$20 00
Southern Fdy. No. 2	21 51
Lake Superior Charcoal	27 04
Malleable	20 00

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC	20x28 112 sheets	\$22 50
IX	20x28	26 50
IXX	20x28 56 sheets	14 50
IXXX	20x28	15 50
IXXXX	20x28	17 00

TERNE PLATES

	Per Box
IC 20x28, 40-lb. 112 sheets	\$26 70
IX 20x28, 40-lb. 112 sheets	29 70
IC 20x28, 25-lb. 112 sheets	22 20
IX 20x28, 25-lb. 112 sheets	25 20
IC 20x28, 20-lb. 112 sheets	20 25
IX 20x28, 20-lb. 112 sheets	23 00

"ARMCO" INGOT IRON PLATES

No. 8 ga.—100 lbs.	\$4 15
3/16 in.—100 lbs.	4 05
1/4 in.—100 lbs.	3 85

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12 00
Cokes, 90 lbs., base, 20x28	12 20
Cokes, 100 lbs., base, 20x28	12 40
Cokes, 107 lbs., base, IC	
20x28	12 75
Cokes, 135 lbs., base, IX	
20x28	14 75
Cokes, 155 lbs., base, 3X,	
56 sheets	8 50
Cokes, 175 lbs., base, 3X,	
56 sheets	9 35
Cokes, 195 lbs., base, 4X,	
56 sheets	10 25

BLUE ANNEALED SHEETS

Base 10 ga.—per 100 lbs.	\$3 35
"Armco" 10 ga.—per 100 lbs.	4 15

ONE PASS COLD ROLLED BLACK

No. 18-20	per 100 lbs.	\$3 85
No. 22	per 100 lbs.	4 00
No. 24	per 100 lbs.	4 05
No. 26	per 100 lbs.	4 15
No. 27	per 100 lbs.	4 20
No. 28	per 100 lbs.	4 30
No. 29	per 100 lbs.	4 45
No. 30	per 100 lbs.	4 55

"ARMCO" GALVANIZED

"Armco" 24	per 100 lbs.	\$6 15
------------	--------------	--------

GALVANIZED

No. 16	per 100 lbs.	\$4 40
No. 18	per 100 lbs.	4 55
No. 20	per 100 lbs.	4 70
No. 22	per 100 lbs.	4 75
No. 24	per 100 lbs.	4 90
No. 26	per 100 lbs.	5 15
No. 27	per 100 lbs.	5 25
No. 28	per 100 lbs.	5 40
No. 30	per 100 lbs.	5 80

BAR SOLDER

Warranted 50-50 per 100 lbs.	\$31 25
48-52	per 100 lbs. 30 50
45-55	per 100 lbs. 29 25
Plumbers'	per 100 lbs. 27 25

ZINC

In Slabs	\$ 7 35
----------	---------

SHEET ZINC

Cask Lots (500 lbs.)	\$11 75
Sheet Lots	12 75

BRASS

Sheets, Chicago base	24 1/2 c
Mill base	23 1/2 c
Tubing, brazed, Chicago base	31 1/2 c
Mill base	30 1/2 c
Tubing, seamless, Chicago	
base	29 1/2 c
Mill base	28 1/2 c
Wire, Chicago base	24 1/2 c
Mill base	23 1/2 c
Rods, Chicago base	22 1/2 c
Mill base	21 1/2 c

COPPER

Sheets, Chicago base	27 1/2 c
Mill base	26 1/2 c
Tubing, seamless, Chicago	
base	30 1/2 c
Mill base	29 1/2 c
Wire, plain rd., 8 B. & S. Ga.	
and heavier	25 1/2 c

LEAD

American Pig	\$7 85
Bar	8 85

TIN

Bar Tin	per 100 lbs. \$51 00
Pig Tin	per 100 lbs. 50 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	7 1/2 c per lb.
Mill board 3/32 to 1/2	7 1/2 c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$6 00 per roll

BRUSHES

Furnace Pipe Cleaning Bristle with handle	each \$0 75
Flue Cleaning	
Steel only, each	1 25

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 45
American Seal, 10-lb. cans, net	85
American Seal, 25-lb. cans, net	2 25
Pecora	per 100 lbs. 7 50

CHIMNEY TOPS

Adams' Revolving	Wt. Doz.	Price Doz.
4 in.	21 lbs.	\$11 00
6 in.	24 lbs.	11 50
7 in.	30 lbs.	13 50
8 in.	33 lbs.	15 00
9 in.	51 lbs.	16 50
10 in.	56 lbs.	18 00
12 in.	66 lbs.	22 00
14 in.	110 lbs.	36 00

CLINKER TONGS

Each	\$1 50
------	--------

CLIPS

Damper	
No-Rivet Steel, with tail pieces, per gross	\$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross	2 40

COPPERS—Soldering Pointed Roofing

3 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 6B	Net

CUT-OFFS

Gal. plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS

Yankee Hot Air	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

ADAMS No. 1 CHECK

Check and Collar Complete	
8 inch, each	2 60
9 inch, each	2 25
End Check Only	
8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	65

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00
10% Disc. on Adams No. 1 and No. 2 Check	
Diamond Smoke Pipe	
7 inch, doz.	\$2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	6 00

Adams' Sheet Metal

7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated	.75-10%
Zinc, "Barnes"	.60%

ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp,	
28 Gauge	.60%
26 Gauge	.45%
24 Gauge	.15%
Galv. Terne Steel	
Plain Rd. and Rd. Corr.:	
28 Ga.	.60%
26 Ga.	.45%
24 Ga.	.15%

Square Corrugated

No. 28 Gauge	.50%
26 Gauge	.35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	.70 & 5%
Nested Solid	.70 & 5%

Sq. Corr., A. & B. & Octagon

28 Ga.	.50%
26 Ga.	.35%

Portico

1", 1 1/4", 1 1/2"	.45%
--------------------	------

Copper

16 oz., all designs	.40%
---------------------	------

Zinc—

All styles	.60%
------------	------

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge.	Doz.
5-inch	\$1 15
6-inch	1 25
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge. Uniform Blue.	
5-inch	\$1 60
6-inch	1 75
7-inch	2 10

WOOD FACES—60% off list.

FENCE

726-6-12 1/2% (100 rods)	\$28 63
1948-6-14 1/2% (100 rods)	43 63

FILES AND RASPS

Heller's (American)	.50-10%
American	.60-10%
Arcade	.60%
Black Diamond	.50%
Eagle	.50%
Great Western	.50%
Kearney & Foot	.50%
McClellan	.50%
Nicholson	.50%
Simonds	.60%

FIRE POTS

Geo. W. Diener Mfg. Co.	Ma.
No. 02 Gasoline Torch, 1 qt.	\$ 5 13
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	8 00
No. 110 Automatic Gas Soldering Furnace	10 50

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$3 00
Tubs (Galv. after made), No. 1	5 75
No. 2	6 50

GLASS

Single Strength, A, all brackets	.85%
Single Strength, B, all brackets	.87%
Double Strength, A, all brackets	.85%
Double Strength, B, all brackets	.87%

HANGERS

Conductor Pipe	
Milcor Perfection Wire	.25%
Milcor Triplex Wire	.10%
Eaves Trough	
Milcor Steel (galv. after forming) from List	.50%
Milcor Selflock E. T. Wire, List	.10%

HOOKS

Conductor	
"Direct Drive" Wrought Iron for wood or brick	.15%

HUMIDIFIER

"Front-Rank," Automatic	
In single lots	.50%
In lots of 10 or more	.50-5%
In lots of 25 or more	.50-10%
Vapor pans, etc., each	.50%

LIFTERS

Stove Cover	
Coppered	per gro. \$6 00
Alaska	per gro. 4 75

MALLETS

Tinners	
Hickory	per doz. \$3 25

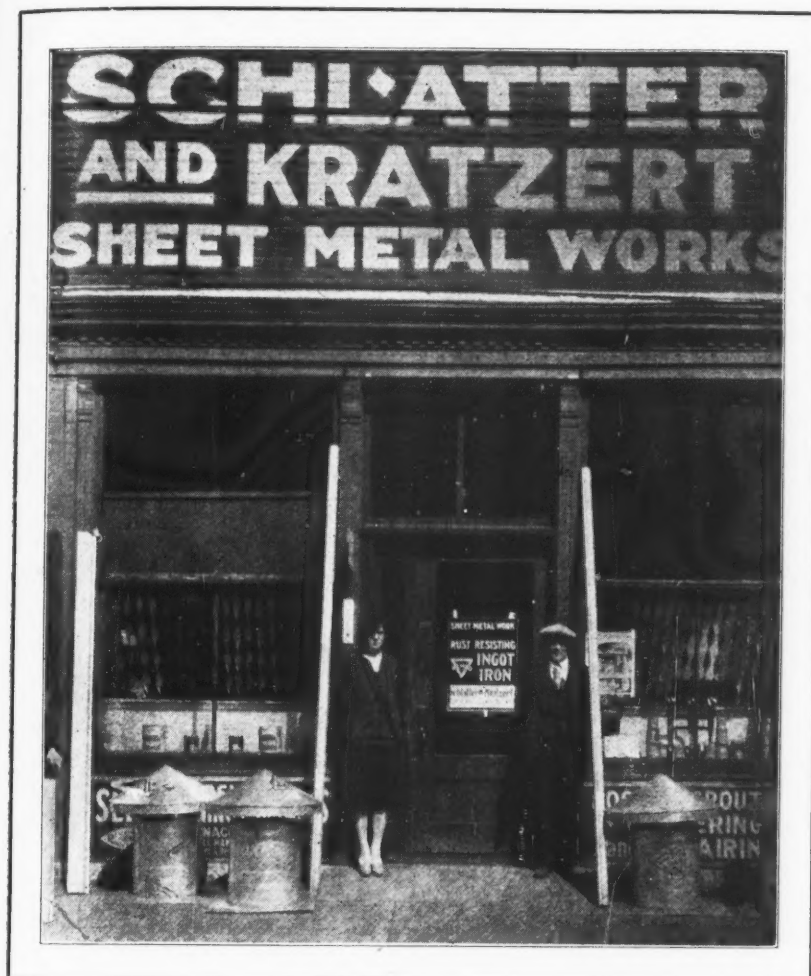
MITRES

Galvanized steel mitres	
28 Ga.	.70
26 Ga.	.60-30

NAILS

Cut Steel, base	\$4 00
Wire	
Common	\$3 10
Cement Coated	3 10

(Continued on page 112)



Schlatter & Kratzert says: "We operate an ARMCO Ingot Iron Shop, exclusively, because we endeavor to give quality work with quality iron. ARMCO Ingot Iron works easier than ordinary irons and steels. Furthermore, its durability and the satisfaction it gives our customers is far superior to any other sheets we have ever used."

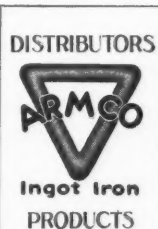


More than three million readers of *The Saturday Evening Post* have seen this convincing advertisement, one of the series of ARMCO messages running in that magazine this year. Think of the people in your community who will look for the blue and white sign when they need sheet metal work. Will they find it on your shop?

Getting the greatest return from your shop investment



This water supply tank at the Ashtabula (Ohio) County Home was fabricated by the Carlson Sheet Metal Works, Ashtabula Harbor, Ohio. After the job was completed, they wrote: "We were very well pleased with the way ARMCO Ingot Iron worked up. It was soft, and easily punched and caulked."



HAVE you seriously considered what ARMCO Ingot Iron can do to increase your profits?

As to workmanship, ARMCO Ingot Iron is a soft, ductile iron. You can work it *faster*, and *surer*. The finished job is true to specifications. You save in time and labor costs. And customers are better satisfied.

But that is only a part of the picture. Your prospects and customers *know* ARMCO Ingot Iron. Many of them have experienced the economy of this rust-resisting iron. Others know it from reading ARMCO advertisements in leading national magazines. Still others know ARMCO Ingot Iron through the experiences of their friends and neighbors.

Ask the salesman of any of our members companies to supply you ARMCO Ingot Iron sheets and sheet products. And when you place that order, ask about the advantages of having an Ingot Iron Shop. Or, if you prefer, write us direct.

The Armco Distributors' Ass'n of America
Executive Offices, Middletown, Ohio

ARMCO INGOT IRON RESISTS RUST

Say you saw it in *AMERICAN ARTISAN*—Thank you!

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PASTE

Asbestos Dry Paste:
200-lb. barrel \$14 00
100-lb. barrel 7 50
50-lb. pall 4 35
10-lb. bag 1 00
5-lb. bag 55
2½-lb. cartons 25

RIDGE ROLL

Galv., Plain Ridge Roll,
b'dld 75-16-87
Galv., Plain Ridge Roll
crated 75-16

POKERS, FURNACE

Each \$0 75

POKERS, STOVE

Nickel Plated, coil handles,
per doz. 1 10
W'r't Steel, str't or bent,
per doz. \$0 75

PIPE

Conductor
Cor. Rd., Plain Rd., or Sq.

Galvanized
Crated and nested (all
gauges) 75-7½%
Crated and not nested
(all gauges) 75-2½%

Furnace Pipe

Double Wall Pipe and
Fittings 50 & 10%
Single Wall Pipe, Round
Galvanized Pipe 50 & 10%
Galvanized and Tin Fit-
tings 50 & 10%

Lead

Per 100 lbs. \$12 50

Stove Pipe

"Milcor" "Titelock" Uniform Blue
Stove
28 gauge, 5 inch U. C.
nested 11 00
28 gauge, 6 inch U. C.
nested 12 00
28 gauge, 7 inch U. C.
nested 14 00
30 gauge, 5 inch U. C.
nested 10 25
30 gauge, 6 inch U. C.
nested 11 00
30 gauge, 7 inch U. C.
nested 13 00

T-Joint Made up

6-inch, 28 ga. per doz. 1 1 40
All Line
No. 11, all styles 60%

PULLEYS

Furnace Tackle. per doz. \$0 85
Steel and Semi-Steel. per gro. 8 50
Furnace Screw (enameled)
..... per doz. 75

PUTTY

Commercial Putty, 100-lb.
Kits \$3 50

QUADRANTS

Malleable Iron Damper. 10%

REDUCERS—Oval Stove Pipe

Per Doz.
7-6, 28-gauge, 1 doz. in
carton \$2 00

REGISTERS AND BORDERS

Baseboard, Floor and Wall

Cast Iron 20%
Steel and Semi-Steel 33½%
Baseboard, 1 piece 33½-20%
Baseboard, 2 piece 33½%
Wall 33½%
Adjustable Ceiling Ventilators
..... 33½%

Register Faces—Cast and Steel

Japanned, Bronzed and
Plated, 4x6 to 14x14. 33½%
Large Register Faces—Cast,
14x14 to 38x42 50%
Large Register Faces—Steel,
14x14 to 38x42 60%

Ventilating Register

Per gross 9 00
Small, per pair 30
Large, per pair 50

SCREWS

Sheet Metal

7, ½x½, per gross \$0 83
No. 10, ¾x16, per gross 83
No. 14, ¾x¼, per gross.. 83

SHEARS, TINNERS' & MACHINISTS'

Viking \$23 00
Lennox Throatless
No. 18 35%
Shear blades 10%
(f. o. b. Marshalltown, Iowa)

SHIELDS, ADJUSTABLE RADIATOR

No. 1 "Gem" 11" to 17"....30%
No. 2 "Gem" 14" to 24"....30%
No. 8 "Gem" 35" to 65"....30%

SHOES

Galv. 28 Gauge, Plain or cor-
rugated round flat crimp. 60%
26 gauge round flat crimp. 45%
24 gauge round flat crimp. 15%

SNIPS, TINNERS

Clover Leaf 40 & 10%
National 40 & 10%
Star 50%
Milcor Not

SQUARES

Steel and Iron Not
(Add for bluing \$3 per doz. net)
Mitre Not
Try Not
Try and Bevel Not
Try and Mitre Not
Fox's per doz. \$6 00
Winterbottom's 10%

STOPPERS, FLUE

Common per doz. \$1 10
Gem, No. 1 per doz. 1 10
Gem, flat, No. 3. per doz. 1 00

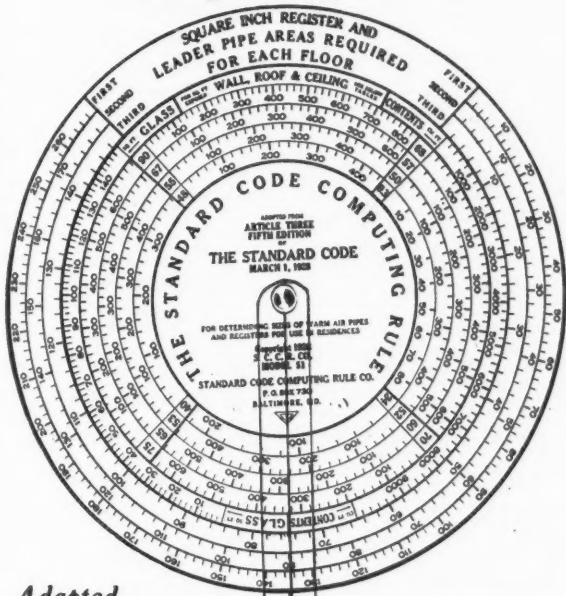
VENTILATORS

Standard 30 to 40%

WIRE

Black annealed wire, No. 9,
per 100 lbs. \$3 50
Galvanized barb wire, per
100 lbs. 3 90
Cattle Wire—galvanized catch
weight spool, per 100 lbs.. 3 50
Galvanized Plain Wire, No.
9, per 100 lbs. 3 28

The STANDARD CODE Computing Rule



Adapted
from Article Three 5th Edition
of the
STANDARD CODE
MARCH 1, 1928
Simple to Operate

THE Computing Rule is not a novelty, but, a well designed mathematical device, for figuring leader pipe and register areas for warm air heating systems. It has proven its accuracy in estimating and has passed the experimental stage. It is operated similar to an Engineer's slide rule.

The complete instructions are easily understood. You can learn to operate the Rule in less than one hour.

Results can be had without a single Division, Multiplication or Addition problem, as required in Article Three of the Standard Code. Not a chance for a mathematical error.

"Remember, you do not have to refer to a lot of loose parts or awkward tables."

Simplifies accurate estimating.

Handy Pocket Size

RULES are $5\frac{1}{2}$ inches in diameter— $\frac{1}{8}$ inch thick. Has an upper and lower revolving disc with a hairline indicating result.

It is made of extra heavy and specially prepared celluloid, which reduces shrinkage and warping to a minimum. It is washable and unbreakable.

Can be carried comfortably in your pocket.

Here Is What The Computing Rule Will Determine:

- 1 The warm air pipe and register areas for First, Second and Third floor rooms.
- 2 The areas necessary for 70° inside temperature when the outside temperatures are ZERO, 10, 20 and 30 degrees ABOVE or BELOW zero.
- 3 The areas from the Contents, Glass, Wall, Roof and Ceiling. The factors as covered in Table "A" are represented in accurate form.
- 4 The areas for rooms having One, One and One-half and Two air changes per hour.
- 5 The Unusual Exposure requirements as the 10% for East and West and 15% for Northeast, North and Northwest rooms.

"Absolute Correct Results"

Price, \$3.00—Postpaid

AMERICAN ARTISAN

139 North Clark Street
CHICAGO, ILLINOIS

A Good Tin Roof
means a roof made of



IF your prospective customer knows as much about tin roofing as you do he will specify Taylor's, but if he doesn't he will leave it up to you or price.

That's the time for you to tell him that TARGET and ARROW is the highest quality, longest lived roofing tin in the world.

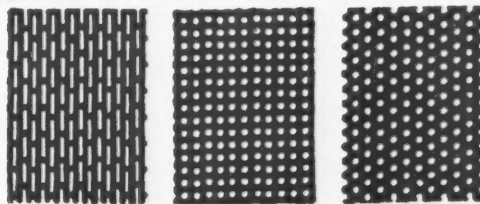
Made by an old Welsh hand-dipped process—soaked for 35 minutes in successive pots of palm oil and molten metal.

SOLD BY DISTRIBUTORS IN
ALL PARTS OF THE COUNTRY

N. & G. TAYLOR COMPANY
Broad and Arch Streets Philadelphia

Headquarters for Good Roofing Tin Since 1810

PERFORATED METALS



All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATING METAL

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE ST.—CHICAGO, ILL., U. S. A.
NEW YORK OFFICE: 114 LIBERTY ST.

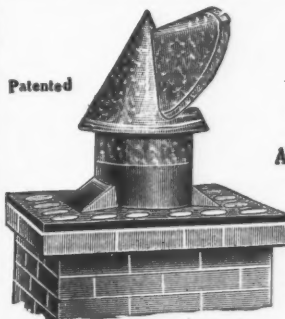
The NEW IMPROVED "STANDARD"

ROTABLE VENTILATOR

THIS favorite ventilator has been further improved to insure—

Now made
of
ARMCO IRON

Greater Durability
Quieter Operation
Greater Efficiency
Better Balance



"Standard" Ventilator and Chimney Cap—
Most Efficient Combination on the market.

STANDARD VENTILATOR CO.,

The New Cone-top Suspension, new Bronze Guide Bushings, and Cross Braced Skirt are the new features.

Let us tell you in detail all about this better ventilator.

Write for special circular and prices today

LEWISBURG, PA.

BUYERS' DIRECTORY

Air Cleaners.
Meyer & Bro. Co., F., Peoria, Ill.

Asbestos Paper.
Sall-Mountain Co., Chicago, Ill.

Ball Joints.
Alfred C. Goethal Co., Milwaukee, Wis.

Benchies—Steel.
Maplewood Machinery Co., Chicago, Ill.

Blast Gates.
Alfred C. Goethal Co., Milwaukee, Wis.

Blow Pipe Fittings.
Alfred C. Goethal Co., Milwaukee, Wis.

Bolts—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Brakes—Bending.
Dreis & Krump Mfg. Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Brakes—Cornice.
Dreis & Krump Mfg. Co., Chicago, Ill.

Brass and Copper.
American Brass Co., Waterbury, Conn.
Copper & Brass Research Association, New York

Cans—Garbage.
Osborn Co., The J. M. & L. A., Cleveland, Ohio

Castings—Malleable.
Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal.
Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Chaplets.
Fanner Mfg. Co., Cleveland, Ohio

Chimney Tops.
Standard Ventilator Co., Lewisburg, Pa.

Cleaners—Vacuum.
Brillion Furnace Co., Brillion, Wis.
Gottschalk Heating Co., Covington, Ky.
National Super Service Co., Toledo, Ohio

Copper.
American Brass Co., Waterbury, Conn.
Copper & Brass Research Association, New York

Cornices.
Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Cut-offs—Rain Water.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Dampers—Quadrants—Accessories.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Parker-Kalon Corp., New York, N. Y.

Damper Regulators.
National Regulator Co., Chicago, Ill.
H. M. Sheer Co., Quincy, Ill.

Dies—Punch & Press.
La Salle Machine Works, Chicago, Ill.

Diffuser—Air Duct.
Aeolus-Dickinson Co., Chicago, Ill.

Doors—Metal.
Lupton's Sons Co., David, Philadelphia, Pa.

Drive Screws—Hardened Metallic.
Parker-Kalon Corp., 200 Varick St., New York

Eaves Trough.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
New Jersey Zinc Sales Co., The, New York, N. Y.

Elbows and Shoes—Conductor.
Barnes Metal Products Co., Chicago, Ill.
Dieckmann Co., Ferdinand, Cincinnati, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Wood Faces—Warm Air.
Auer Register Co., Cleveland, Ohio
American Wood Register Co., Plymouth, Ind.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Fittings—Conductor.
Barnes Metal Products Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Flanges.
Chicago Metal Mfg. Co., Chicago, Ill.

Fittings—Steel Pipe.
Chicago Metal Mfg. Co., Chicago, Ill.

Flue Thimbles.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Furnace Cement—Asbestos.
Connors Paint Mfg. Co., Wm., Troy, N. Y.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Furnace Cement—Liquid.
Technical Products Co., Pittsburgh, Pa.

Furnace Cleaners—Suction.
Brillion Furnace Co., Brillion, Wis.
Gottschalk Heating Co., Covington, Ky.
National Super Service Co., Toledo, Ohio

Furnace Fans.
A-C Mfg. Co., Pontiac, Ill.
Canton Furnace & Mfg. Co., Canton, Ohio
A. H. Robinson Co., Massillon, Ohio
Warm Air Furnace Fan Co., The, Cleveland, Ohio

Furnace Fuse.
National Regulator Co., Chicago, Ill.

Furnace Regulators.
National Regulator Co., Chicago, Ill.
H. M. Sheer Co., Quincy, Ill.

Furnace Rings.
Forest City-Walworth Run Foundries Co., Cleveland, Ohio
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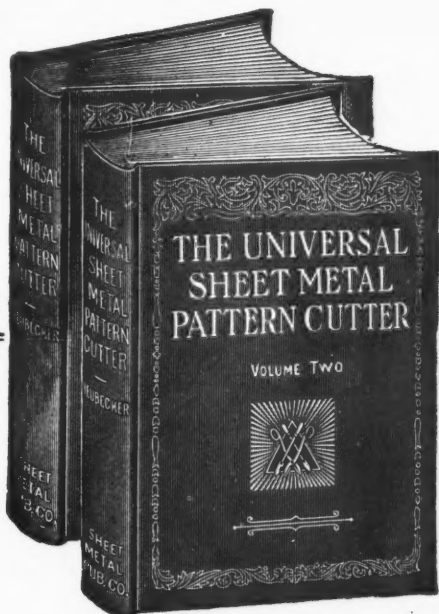
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(Continued on page 116)

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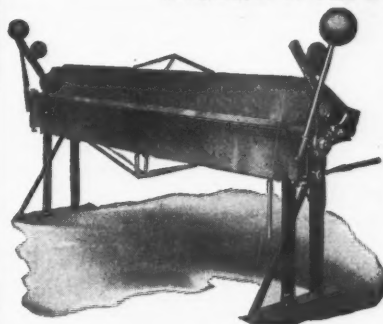
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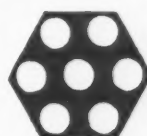
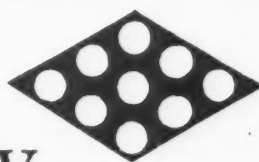
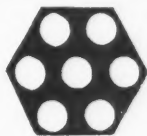
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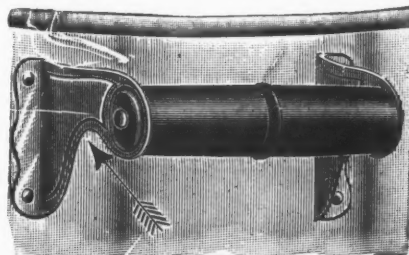


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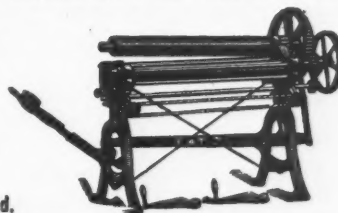
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(Continued from page 114)

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